PAGE 6 PUBLISHING's

NEW ATARI USER

Issue 46 £1.75
October/November

XL/XE

HOT BLOCKS

A classic ST game to type in for your XL/XE



RECORDING SOUND FROM YOUR ATARI

ALTERNATE INPUT ROUTINES

TURBO BASIC DEMOS

INFOCOM - R.I.P.

A FINAL FAREWELL TO THE ADVENTURE KINGS

SOFTWARE BARGAINS
CHECK INSIDE

ST FILE

PUBLIC DOMAIN
WORD PROCESSING
UTILITIES

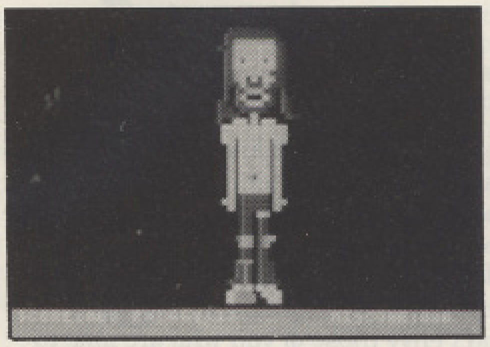
STOS COLUMN - RAINBOW ROUTINES
DAMOCLES - AT LAST!
GOLD OF AMERICA
SIM CITY
FLOOD - ROTOX - KICK OFF 2

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'The magazine for the Dedicated Atari User'

CONTENTS

Issue 46 October/November 1990



RADICAL RUPERT

A weird sort of game

SUBSCRIPTIONS

Annual subscription rates (6 issues)

UK	£10.00
Europe	£15.00
Elsewhere (sea)	£15.00
Elsewhere (Air)	£21.00

Overseas rates reflect only the difference in postal costs

NEW ATARI USER ON DISK

A disk containing all of the 8-bit programs from each issue of NEW ATARI USER is available either separately or on subcription. Single price £2.95 per disk, Subscription rates (6 issues)

UK	£25.00
Europe	£32.00
Elsewhere (sea)	£32.00
Elsewhere (Air)	£42.00

Please make cheques payable to PAGE 6 PUBLISHING and send to the Editorial address shown below

SUBMISSIONS

PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it! Appropriate payment will be made for all published programs and articles, all payments being made at the end of the second month shown on the cover of the issue concerned.

The next issue of NEW ATARI USER will be on sale 22nd November

Editorial copy date is 15th October

ST FILE

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PAGE 6 PUBLISHING's
NEW
ATARI
USER

Issue 46
October/November 1990

'The Magazine for the Dedicated Atari User'

ISSN No. 0958-7705

THE CREDITS

All of the usual stuff is on page 3 but here are the people who made this issue possible.

Les Ellingham did the usual editing, layout, paste up and played around with the finished(?) version of Fleet Street 3 with help from Sean who just played quietly on his own most of the time

Sandy did the usual in looking after the advertising, coping with the mail order and lots more

Now that **Mrs Busby** has settled in we are going to call her Stacey and hope that she doesn't have too many birthdays otherwise nothing will ever get done

The Regular Contributors, who provide the backbone of the magazine and can generally be relied upon to come up with good articles and reviews, are ....

Mark Hutchinson
John Davison jr
Paul Rixon
Ian Finlayson
John S Davison
John Sweeney
Damon Howarth

All other contributors for this issue are individually credited alongside their articles or programs. Thanks to everybody for sharing their work and enthusiasm with other Atari users.

We never did hear

The cover picture comes from **Paul Lay**'s new game **HOT BLOCKS** - another one that is hard to illustrate in any other way. Let's hope that a feature on the cover will encourage Paul to keep writing for the 8-bit!

This issue is dedicated to ROY HARPER who, after a couple of albums in the wilderness, has come back with an absolute stunner. ONCE contains some of Roy's best songs ever and IF stands as the finest song on religion ever penned. And only Roy Harper would have the courage to write THE BLACK CLOUD OF ISLAM which sums up precisely what these nutters are all about. Thanks, Roy, for a great listening experience and the chills down the spine. All I can do in return is say thank you for helping to create another issue of an insignificant little computer magazine and for having the courage to say things that need to be said.

NEW ATARI USER is the magazine, PAGE 6 is the concept. Wherever you see PAGE 6 you'll know what it means!

The next issue of NEW ATARI USER could feature YOUR article or program, so SEND IT IN NOW!

PAGE 6 shows just what you can do with your Atari. With the exception of final output on a Linotron and use of a repro camera for the listings and photos, the magazine is prepared entirely with Atari based equipment and software - not a Macintosh or IBM in sight! Hardware used includes 130XE, 1050 disk drive, 810 disk drive, 410 cassette (occasionally!), 850 Interface, NEC 8023 printer, 1040ST, SM124 Monitor, Atari SH204 hard disk drive, Cumana 1 meg disk drive, Epson RX100 printer, Kyocera laser printer, Microstuffer printer buffer. Software includes Superscript, Turbo Basic, Kermit, PC Intercomm, TARI-TALK, Print Wiz, STWriter, Protext and Fleet Street Publisher.
Articles and programs submitted on XL/XE disks are subjected to various custom written programs before being transferred across to the ST via TARI-TALK. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. A disk with the finished pages is sent up to a typesetting bureau to be output on a Linotron 300 and, hey presto, finished pages are sent back. It really does work - at last! All that is left is to drop in the listings and photos. Well, it's not quite as easy as that, but you get the idea!

Editorial

TIME OUT?

In theory, the longer you do something the easier it should become and the less time it should take. In the world of producing specialist interest computer magazines this doesn't seem to hold true, however, especially when producing the magazine is not the only thing to be done. When the time comes round to prepare another issue (as it does all too often!) it takes about two weeks of solid work during which time there is not much time to do anything else. Using the computer to write programs or play games went out of the window many years ago and I envy those of you who are able to do these things. In its place comes using the Atari as a creative tool which in itself is quite rewarding especially when programs come along, or are enhanced, to allow you to achieve very professional results without going to outside agencies but sometimes those rewards can be hard won!

Fleet Street Publisher is one of those programs and, if all goes well, this issue will have been produced using Fleet Street 3. I say 'if all goes well' since at the time of writing there appear to be one or two small problems in the Postscript output routines which, if they can't be solved, will mean creating the entire magazine again on the old version! Still, creating the whole magazine again is nothing new! Just as I finished the last issue I had a major disaster and had to recreate the entire magazine - a week's work that took only a couple of days second time round, but that was a couple of days that could have been spent doing some of the normal things that normal people do.

The major problem is lack of staff. Running a magazine with a full time editorial staff of one is not what any sane publisher would ever contemplate! Unless you are making a lot of money, however, it has to be done that way because the world of magazines, graphics and writing is a very high cost world. One occupational diversion is to look through the production credits of other magazines, often more interesting than reading the magazines themselves, to find out how others cope. There are several small circulation magazines who work in the same way but when you come to the big sellers, the difference is remarkable. Take AUTOSPORT for instance, a full time team of forty with another thirty-seven outside contributors. All working on one magazine! I bet these folks go home at 5 pm. and do things like decorating the house, planting the garden, playing computer games, going out, maybe even watching the television!

When we have our staff of forty, I'll take a bit of rest and, maybe, even answer some of your letters!

WARGAMES

Are you interested in writing some reviews for us on wargames for the XL or XE? Miles Better Software have kindly donated some of the SSI war games for review but the chap we had lined up as a wargame reviewer has now deserted the Atari scene so we have the software but no reviewer. Get in touch if you are heavily into wargames and can write an objective review and we will wing them along to you. Please don't apply just to get some free software, you must be able to write clearly and concisely and be able to submit the reviews fairly quickly.

STILL MORE CONTRIBUTIONS

Thanks to those of you who sent in contributions as a result of last issue's editorial. We now have some programs and articles lined up for the next issue but only some. We still need a lot more. What has happened to all the games in Basic that will help to teach others how to program? Most of the games submissions tend to come in the form of machine code which might create great games but doesn't teach the folks typing them in much about programming! What has happened to the folks who used to write articles for magazines like Monitor or the major magazines that occasionally ran Atari articles or programs? Have they gone on to other machines? What about some of those old articles that appeared many years ago, maybe they could be dug up, tidied up and reprinted? There is a stack of knowledge around on the Atari 8-bit that could easily be shared with new users, so how about digging deep and sending something in to us?

Les Ellingham

newscene

TOP US SOFTWARE

Gralin International, who advertise in this issue, are now importing a selection of the ICD range of 8 bit products including the Printer Connection at £29.99, the P:R: Connection, US Doubler, Action! and MAC/65. They also have a nice little catalogue detailing other products currently being imported which concentrates mainly on the productivity side of the XL/XE with hardware from Newell Industries, such as Omnimon, Fastchip and Omniview which gives full 80 column capability plus memory upgrades and other enhancements.

On the software side Gralin have a number of programs that most users will not have heard of such as Blazing Paddles, a comprehensive drawing program, Membership Program, to keep membership records and produce mailing labels, Schematic Designer for producing circuit diagrams. Other programs that have not been available for some time include the database program Data Perfect and another database called Super Database 1-2-3 which allows you to create any number of master databases from the main program, all of which can be run independently

The Gralin product range is relatively small but contains programs and hardware that you will not find elsewhere, give them a little support.

NEW INTERFACE

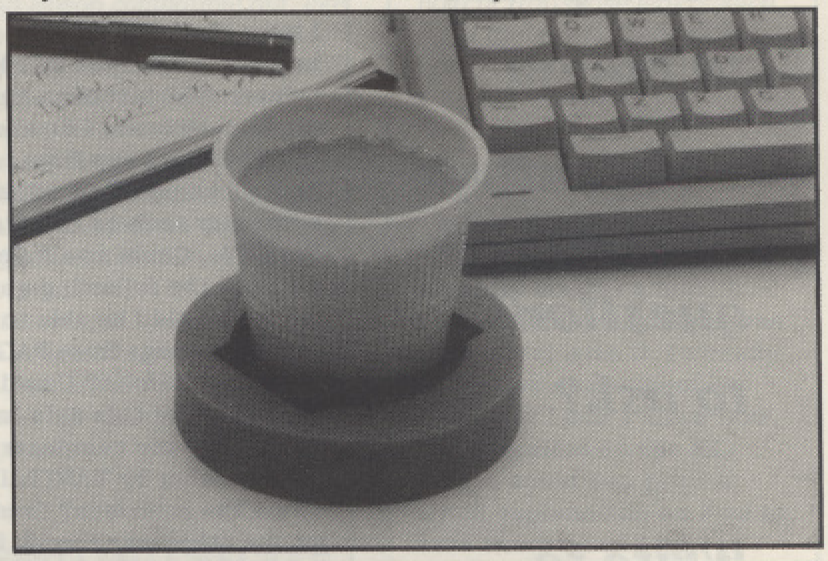
With printer interfaces in short supply since Frontier's decision not to continue with the ICD interface, news of a new Centronics interface is good news indeed. Derek Fern hopes to have available shortly an interface board requiring no soldering that can be installed in your XL or XE. Expected retail price is around £35 but give Derek a ring on 021 353 5730 for further details.

If you want to take a look at the projects that Derek is into and also pick up some printer bargains - he will have a stack of 1027 and 1029 printers available - pop along to the Alternative Micro Show where Derek will be exhibiting along with PAGE 6, Bournemouth and Poole User Group, Callisto and others.

DON'T RUIN YOUR ATARI!

We recently received a free sample of a neat little device that will set you back a mere £1.99 yet could save you a fortune on repair bills. Just a piece of high density foam but cleverly designed to hold plastic vending cups, standard Coke cans, slimline cans or juice cartons on your desk with no chance of them being accidentally knocked over. The device can be free standing or stuck down to your desk.

It's called THE GRIPPER and should be available at places like garages etc. but we haven't seen any locally. If you want to find a stockist give the manufacturers, Innovation Ltd., a ring on 071 359 6919.



Mailbag

Got a point to make?

Got any questions to ask?

Write to Mailbag P.O. Box 54 Stafford ST 16 1DR

PORTFOLIO CONNECTION

I have the following at home, 800XL, Star LC10 printer, 850 interface and modem. Because I do a lot of travelling away from home I would like a pocket computer such as the Atari Portfolio. Could you help me with the following questions? Would I be able to type in listings from PAGE 6 to the Portfolio? Could I then transfer this data in any way to my computer at home, either by TARITALK or via the interface? Could I go the other way round, i.e. send appointments, and addresses from my main database on my home computer to the Portfolios database?

Chris Hudson
Helensburgh

We have had several enquiries along these lines recently, regarding the Portfolio and the Psion Organiser. In theory there is no reason why you cannot transfer data between the 800XL and any other computer, given the right software and connecting cables. You will firstly need an interface on the 800XL such as the 850 or P:R: Connection. Then you need a cable to connect the interface to your other computer which could be the first of your problems. The only ready made cable that we know of will connect the 850 to an ST or IBM but we are not sure if this will connect to the Portfolio or Psion, so you may need to have a cable made up. You next need some communications software on either end. For the 800XL there are public domain programs available (our disk DS#9 contains Kermit and Amodem) and there is a comms package on the Portfolio. Once you have all this, you should be able to transfer data both ways without problems.

Typing in program listings should be possible, but you will not be able to access the Atari 'CONTROL' characters on the Portfolio so will need to substitute these characters and retype them when ported over to the 800XL. Listings transferred from another machine should be in ASCII format and need to be entered into the XL with the ENTER command and then resaved using SAVE. Transferring data out from the XL should also be in ASCII so you should ensure that any database you use can output files in straight ASCII format.

All this should be possible but we have not tested it. The entire subject of transferring data to other computers, especially portables, would make an interesting article and someone reading this must have done it. How about writing the article?

MEMORANDUM

There is a slight error in my MEMORANDUM program published in Issue 45.

The N=%1 in line 590 must be changed to N=%0 otherwise the first record of a$ can't be found if you type the first letter of that record in the Search mode.

Robert de Letter
Belgium

1050 REPAIRS

I shall be most grateful for your help, please. I have a 1050 disk drive which is in need of attention but so far have not located a local repairer. I can get to Bath, Bristol or Swindon if you know of a repairer in these towns.

D. Saunders,
Devizes

Repairers for 8 bit products are now few and far between and most folks will almost certainly have to send their computers and drives away. There used to be a repairer in your area called Avon Micro Centre but we are not sure if they still repair 8 bits, you could give them a try on 0789 292269. The only other repair service that we know of currently is offered by Derek Fern who has an advert elsewhere in this issue.

COMPUTERHOUSE WARNING

I am writing to complain about one of your advertisers, Computerhouse UK. Six months ago I purchased an XF551 disk drive from them which became faulty after only 2 weeks. For six months now I have been trying to get them to honour the guarantee but they refuse to answer any letters I write on this matter. Could you please therefore consider very carefully any future advertisements they place with you or at least warn your readers about this company. I am trying desperately to get Atari to take responsibility but this seems highly unlikely as I purchased the machine from Computerhouse. It therefore looks likely that I shall have to bear the cost of any repairs needed. Be warned.

H. Rayner,
Leicester

We have not taken any advertising from Computerhouse since the end of last year and in fact they have not yet paid us for the last advertisement they placed. We are currently in the process of suing the company for non-payment but as they have failed to respond to the summons it looks likely that the bailiffs will have to be sent in. Computerhouse never

were very good at submitting advertising copy on time or paying us but we have never had more than the odd complaint about them over the years. Naturally there will be no further advertising and readers are warned about responding to earlier advertisements.

UNFINISHED BUSINESS

I own a 65XE and XC12 tape recorder and enjoy your magazine a lot but I have a problem. I am a slow typer and it takes me ages to write programs or type them in from magazines and I wondered if there was a way of writing some of the program I am working on and saving it and being able to load an uncompleted program. So even if I shut off the computer I can reload the unfinished program and carry on from there.

Gurbinder Aulak,
Birmingham

There is absolutely no need to complete a program before you save it, indeed it is preferably to save several 'incomplete versions as you go along in case there should be a power failure or other problem with your computer. All you need to do is CSAVE or SAVE you listing at any time, it doesn't matter what stage you are at. The program remains in memory and you can save it again when you have typed some more. If you want to shut down the computer, just CSAVE or SAVE the listing and then CLOAD or LOAD it again when you switch on. You can then carry on typing and the whole program will be in memory. It's simple, just save whenever you like, load in unfinished programs and carry on typing.

If you have a very long listing that you would prefer to split into sections then you can save it in a different format and combine the sections later. If you use the command LIST, such as LIST "C:" or LIST "D:filename" then the program is saved in a form that can be combined with other programs, or parts of programs. In this case you would type say the first half of a program and LIST it out. You could then switch off and on again and type in the second half again saving this with LIST to another section of tape or disk. To combine the two just enter the first listing using ENTER "C:" or ENTER "D:filename" and then enter the second listing using the ENTER command. The two listings will be combined into one. The only thing you must be careful of using this method is not to use the same line number in the second listing since these will overwrite original line numbers from the first program when combining the two listings.

WHAT PRINTER?

I'm thinking of buying a printer to use with my 800XL and I'm tempted to stick with Atari but I know that the 1029 is incompatible with most commercial software and I'm not clear whether this problem still occurs with the XMM801. Please put me out of my misery by telling me whether I would be able to use software such as Printshop with the XMM801 or whether I should forget it and search out an interface for another brand of printer.

If you help me out on this one, you'll confirm my belief that yours is the best magazine ever!

Alison Dunbar
Fraserburgh

The prime consideration when buying a printer is how much you can afford to spend. If you can afford it, we would recommend going for an interface and an Epson compatible printer every time but you are looking to spend a minimum of £150 altogether probably more. We would recommend a Panasonic KXP1082 or similar with an ICD Printer Connection which you should find will cope with most commercial software. If money is tight then your only option, short of buying second hand, is to get an Atari printer. The 1029 can now be picked up quite cheaply but, as you say, it does have compatibility problems with some software. It is nevertheless a good beginners printer and should serve you well for most non-graphics applications. As far as the XMM801 goes, this should be an Epson compatible but, like many so called 'compatibles' it isn't fully and you may still have problems with some commercial software. It is a much better printer than the 1029 however and would be worth paying a little more for. If you can find one that is because Atari no longer manufacture this model. Try a 1029 as the cheap option or save up for a third party printer and interface, the choice is yours!

SPELLING CHECKER

I have a copy of mini Office II and find the whole package very useful, very well set out and would recommend it to anyone who wants a low cost office package. The one problem I have however, and I suspect others have a similar problem, is my spelling. It's not bad but could be better. Is there any word processor package on the market for the XL/XE machines with such a spelling checker built in?

B. Spooner,
Fishguard

AtariWriter Plus has a built in spelling checker and there is a separate spell checker, Proofreader, for the Atariwriter ROM cartridge but be warned, both these are based on American dictionaries and could cause you a few problems if you believe everything they tell you! The only word processor that we know of with an English dictionary is Superscript, a program that we would recommend highly, if you can find a copy. Unfortunately it is no longer being published so you will have to look out for a second hand copy. In our opinion a spell checker is absolutely essential with a word processor, not necessarily to correct bad spelling but to pick up typing mistakes. You have to be very careful though and still proof read any document since spell checkers are pretty dumb and will allow you to do things such as miss off the first letter of many words, such as ten or hold or transpose letters such as in the words there (three), quite (quiet) and spilt (split). Use with caution!

SPRITES

Please can you help me? I recently bought a 800XL but unfortunately there was no booklet with it. I already know how to program in Basic but I don't know how to get sprites on the XL. Please could you print a small explanation on how to turn them on and how to get multicolour sprites and also show me how to get multicolour text on screen?

Also do you know of any advanced programming books on the 800XL?

Thor Snekkestad,
Cambridge

A 'small' explanation of sprites, also known as player-missile graphics, on the XL is not possible, we devoted a series of articles to it some time ago but, unfortunately, those issues are now out of print. The book YOUR ATARI COMPUTER contains an explanation of using player-missile graphics and is one of the few comprehensive books still in print, well worth the, rather expensive, price. If you want a cheaper book, try EASY PROGRAMMING FOR THE ATARI MICROS, a superb book but aimed more at the beginner. Neither of these books cover multi-colour text, which is strictly not possible on the Atari although it can be done with some very clever (and advanced) programming. Books on advanced programming? Sorry, but all of the ones we knew of are now out of print.

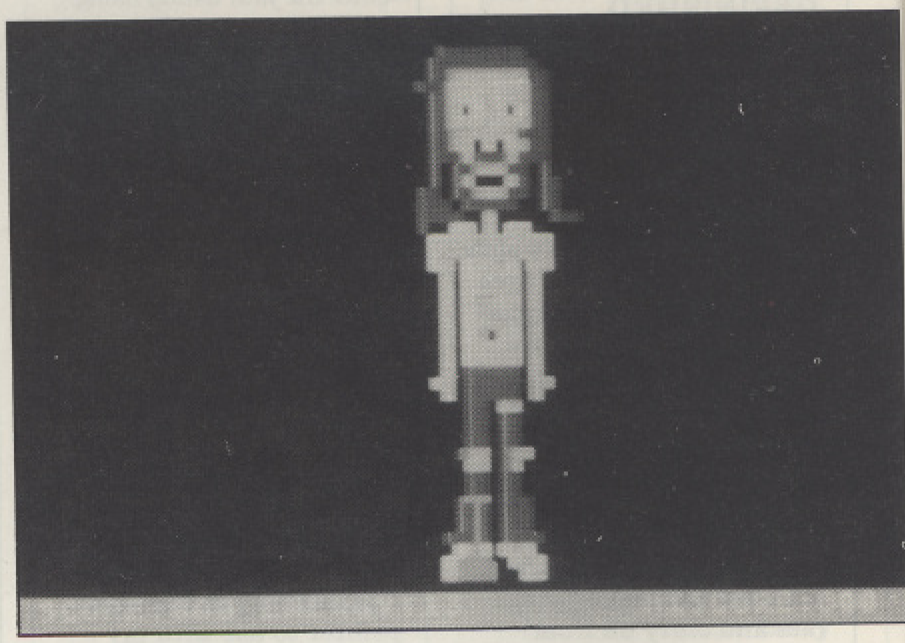
RADICAL

BRIEF OUTLINE ON RUPERT - DUG UP FROM A SCHOOL REPORT

..... 'Rupert is a social outcast in all aspects of his character. He is unlikely to progress to the threshold of acceptability unless he is given dramatic help'

GAME OUTLINE

The idea is to give Rupert his prescribed dose of medicine (its effect is to change Rupert's behaviour pattern to that of a more respectable person). The task has been made easier by the fact that Rupert's mouth is constantly gaped open. Sounds easy - give Rupert his medicine and that's it - the only problem is that Rupert IMMENSELY DISLIKES taking his medicine.



Don't blame Rupert, blame Gavin Davidson who wrote the game

WILL Rupert Remain Riskily Radical or WILL he Realise that your Ruthless ways of Remedying him is Really in his best interests .... and WILL there be enough medicine for Rupert!

To have any hope of changing Rupert you have to complete the following three tasks

TASK 1

You can use the joystick to move your 'Medicine Supplier' to the left or right. The joystick button causes a tablet of medicine to be fired upwards which has to enter Rupert's mouth to have the desired effect. 10 points are given for a successful entry.

TASK 2

You use the joystick button to ignite the 'Medicine Supplier' rockets. This time Rupert needs a larger dose of medicine, so the whole blaster has to enter Rupert's mouth. 60 points are given for each successful entry. Unfortunately you are only allowed 6 chances to score. You must have 2 successful entries to continue to task 3.

TASK 3

As in Task 2 the joystick button is used to ignite the 'Medicine Supplier' rockets but this time you control the blaster in flight by moving the joystick left or right. The blaster has to enter Rupert's mouth and 200 points are given for a successful entry because this time Rupert has got to be given a huge dose of medicine as a last hope of changing him. You have only one supply of medicine to change him ....

FUNCTION KEYS

OPTION: Return to title page
SELECT: Change skill level (3 levels)
START: Begin game

PERT

```
EI 1 REM ********************************
BE 2 REM *      RADICAL RUPERT          *
LR 3 REM *            by                *
HH 4 REM *       Gavin Davidson         *
EC 5 REM * ---------------------------- *
DZ 6 REM * NEW ATARI USER  OCTOBER '90 *
EO 7 REM ********************************
NN 8 REM
MD 10 GRAPHICS 0:POKE 752,1:? "PLEASE WAI
   T ONE MINUTE.":RESTORE 80:FOR T=0 TO 3
   698:READ A:POKE 27904+T,A:NEXT T
CP 12 GRAPHICS 0:POKE 752,1:? "PRESS SELE
   CT KEY TO PLAY GAME.":? "PRESS OPTION
   TO SAVE GAME TO CASSETTE."
KO 13 IF PEEK(53279)=5 THEN X=USR(30384)
OV 14 IF PEEK(53279)<>3 THEN GOTO 13
NG 15 ? ".......PRESS RETURN KEY TO SAVE.
   ......"
XE 18 POKE 203,128:POKE 204,108
BL 20 RESTORE 30:FOR R=0 TO 20:READ A:POK
   E 27777+R,A:NEXT R
MD 30 DATA 30,128,108,141,108,169,60,141,
   2,211,24,96,169,176,133,10,169,118,133
   ,11,96
MX 40 FOR X=1536 TO 1593:READ Y:POKE X,Y:
   NEXT X
MJ 50 DATA 104,104,104,141,9,6,162,16,169
   ,7,157,66,3,165,203,157,68,3,165,204,1
   57,69,3,169,0
XE 60 DATA 157,72,3,169,128,133,62,169,15
   ,157,73,3,32,86,228,169,12,157,66,3,32
   ,86,228,96,0,0,0,0,0,0,0,0,0
VB 70 CLOSE #1:OPEN #1,8,0,"C:":Q=USR(153
   6,11):CLOSE #1
PM 80 DATA 112,112,112,71,23,109,7,6,6,6,
   7,7,7,7,7,7,7,134,130,130,65,0,109,0,0
   ,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
SR 90 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
   0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
   0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
KL 100 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
KN 110 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
KP 120 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
KG 130 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,51,35,47,50,37,26
YB 140 DATA 16,16,16,0,37,46,37,50,39,57,
   26,20,18,0,0,0,0,0,0,0,0,40,41,51,35,4
   7,50,37,26,16,16,16,0,0,0,0,0,0,0
TL 150 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,14,14,14,37,45,48,52,57,0,0
YR 160 DATA 0,0,0,0,50,57,0,40,33,50,36,3
   7,50,0,45,33,46,1,14,14,14,14,14,14,14
   ,0,0,0,62,8,8,8,8,8,8,8,8,8,62,127
SZ 170 DATA 127,127,0,19,14,14,2,44,111,1
   10,103,12,51,108,111,119,0,36,111,99,1
   07,2,14,14,14,14,14,14,14,14,167
NO 180 DATA 0,161,0,173,0,165,0,0,175,0,1
   82,0,165,0,178,14,14,14,14,55,47,55,1,
   0,45,33,46,12,57,47,53,7,54,37,0
KS 190 DATA 33,44,45,47,51,52,0,51,33,54,
   37,36,0,40,41,45,14,14,14,14,14,14,14,
   14,14,14,14,14,14,14,44,41,43,37
VI 200 DATA 0,52,50,57,0,40,33,50,36,37,5
   0,0,45,33,46,1,14,14,14,14,14,14,14,14
   ,14,14,16,16,236,229,246,229,236
DX 210 DATA 218,229,225,243,249,0,237,225
   ,238,0,236,233,235,229,0,232,225,242,2
   28,242,229,225,236,0,232,225,242
MW 220 DATA 228,100,110,120,140,160,180,2
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TURN THE PAGE, MAN

RADICAL

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   00,200,180,160,140,120,250,200,100,50,
   49,48,47,17,16,15,14,13,12,5,4,3
SZ 230 DATA 2,1,0,31,63,48,62,62,58,62,16
   ,16,11,12,8,12,7,0,12,63,63,55,23,23,2
   3,23,23,23,23,23,224,248,24,248,248
NR 240 DATA 184,248,48,16,176,96,32,96,19
   2,0,96,248,248,216,208,208,208,208,208
   ,208,208,208,162,81,60,243,121,60
CS 250 DATA 243,121,60,243,121,60,0,0,0,2
   43,121,60,47,0,0,60,47,243,121,60,47,2
   30,114,0,0,217,108,53,45,0,0,53,45
LE 260 DATA 217,108,53,45,204,102,0,0,193
   ,96,47,40,0,0,47,40,193,97,47,40,182,9
   1,0,0,173,85,0,0,182,91,0,0,162,81
BT 270 DATA 40,29,162,81,0,0,162,81,40,29
   ,162,81,40,29,243,121,60,40,243,121,60
   ,40,243,121,60,40,0,0,0,0,0,0,0,0
UN 280 DATA 31,63,48,126,62,58,62,48,48,5
   9,44,40,108,119,120,76,60,63,55,7,7,4,
   4,6,4,7,7,7,7,7,6,6,6,6,8,0,6,6,14
UO 290 DATA 14,14,30,10,20,24,15,15,15,11
   ,15,15,13,4,3,4,3,0,1,13,63,63,55,23,2
   3,23,23,23,22,23,23,16,48,16,0,0
UZ 300 DATA 0,0,6,6,0,0,0,0,0,0,14,28,24,
   224,240,24,248,248,184,248,56,24,184,1
   04,44,108,204,7,96,120,248,88,192
OU 310 DATA 192,192,192,64,64,192,192,192
   ,192,192,0,192,192,192,128,128,192,192
   ,224,224,224,240,160,80,48,224,224
WE 320 DATA 224,160,224,192,96,64,128,64,
   128,0,0,96,248,248,216,208,208,208,208
   ,208,208,208,208,16,24,16,192,0,0
RQ 330 DATA 0,96,64,0,0,0,0,0,0,224,112,4
   8,62,28,62,127,127,54,28,28,62,127,127
   ,54,62,8,8,8,8,8,0,62,8,8,8,8,0,0
PI 340 DATA 62,8,8,8,0,0,0,62,8,8,8,8,8,8
   ,130,138,16,116,130,162,17,19,35,93,20
   6,14,30,14,14,14,50,33,36,41,35,33
KY 350 DATA 44,0,50,53,48,37,50,52,14,14,
   14,119,114,105,116,116,101,110,39,33,5
   4,41,46,0,36,33,54,41,36,51,47,46
YP 360 DATA 35,47,46,35,37,41,54,37,36,0,
   38,50,47,45,0,52,40,37,0,33,50,35,40,4
   1,52,37,35,52,53,50,33,44,0,45,41
TI 370 DATA 46,36,51,0,0,47,38,0,39,33,54
   ,41,46,0,33,46,36,0,35,40,33,50,44,37,
   51,0,36,33,54,41,36,51,47,46,14,98
NT 380 DATA 114,97,105,110,119,97,118,101
   ,115,0,44,47,47,43,51,0,33,51,0,41,38,
   0,57,47,53,50,0,34,44,33,51,52,37
RT 390 DATA 50,0,0,0,0,0,46,37,37,36,51,0
   ,41,52,51,14,14,14,37,50,14,45,41,51,5
   1,44,37,0,51,53,48,48,44,57,0,50
RF 400 DATA 37,48,44,37,45,41,51,40,37,36
   ,46,62,8,8,8,8,8,8,8,8,8,62,127,127,12
   7,127,127,127,52,52,37,50,12,46,47
YA 410 DATA 55,0,39,33,45,37,0,35,33,46,0
   ,34,37,39,41,46,0,51,35,47,50,37,26,16
   ,16,16,0,37,46,37,50,39,57,26,0,0
MU 420 DATA 0,0,0,0,0,0,0,0,40,41,51,35,4
   7,50,37,26,16,16,0,0,0,48,47,51,41,52,
   41,47,46,0,17,14,14,2,52,114,121
CV 430 DATA 105,110,103,0,116,111,0,116,1
   01,109,112,116,0,47,108,103,97,2,14,14
   ,14,14,121,81,40,162,121,81,40,144
IA 440 DATA 108,72,35,144,108,81,40,136,1
   02,68,33,0,0,0,0,204,102,81,68,204,0,8
   1,68,0,102,81,68,204,0,81,68,204
DJ 450 DATA 102,81,68,0,0,91,0,0,0,81,0,1
   73,85,68,57,173,0,68,57,0,85,68,57,173
   ,0,68,57,173,85,68,57,0,0,76,0,0
JC 460 DATA 0,68,0,153,76,60,50,153,0,60,
   50,153,76,60,50,173,85,68,57,0,0,0,0,1
   73,85,0,0,0,0,0,0,173,85,0,0,204
NF 470 DATA 102,81,68,204,102,81,68,204,1
   02,81,68,0,0,0,0,192,0,0,0,0,72,169,12
   0,141,10,212,141,24,208,141,26,208
DZ 480 DATA 104,64,0,0,56,169,0,141,8,210
   ,165,106,233,8,141,7,212,133,204,24,10
   5,1,133,208,105,1,133,206,169,0,133
LI 490 DATA 203,133,205,133,207,162,0,160
   ,0,169,0,145,207,200,208,249,169,46,14
   1,47,2,169,16,141,198,2,169,3,141
VD 500 DATA 15,210,169,13,141,197,2,169,2
   44,141,192,2,141,194,2,169,58,141,193,
   2,141,195,2,169,217,141,199,2,169
CF 510 DATA 116,141,103,6,169,3,141,29,20
   8,169,52,141,111,2,169,12,141,196,2,16
   9,1,141,8,208,141,9,208,141,10,208
MS 520 DATA 141,11,208,169,126,141,106,6,
   96,141,121,6,142,122,6,140,123,6,96,12
   0,169,109,141,49,2,169,0,141,48,2
NE 530 DATA 169,64,133,16,141,14,210,169,
   160,141,0,2,169,114,141,1,2,169,192,14
   1,14,212,88,162,0,169,0,157,27,110
XW 540 DATA 232,224,82,208,246,162,0,189,
   229,112,157,23,109,232,224,20,208,245,
   162,0,189,31,111,157,223,109,232
RX 550 DATA 224,6,208,245,162,0,189,84,11
   3,157,69,109,232,224,10,208,245,169,10
   2,141,92,109,169,114,141,93,109,169
YB 560 DATA 111,141,94,109,169,109,141,95
   ,109,162,0,189,0,113,157,107,109,232,2
   24,14,208,245,162,0,189,14,113,157
JV 570 DATA 27,110,232,224,70,208,245,162
   ,0,172,136,6,76,28,119,189,95,111,32,1
   6,116,136,230,206,189,122,111,32
KT 580 DATA 16,116,198,206,200,232,192,66
   ,208,233,96,162,0,160,12,189,0,112,32,
   16,116,136,230,206,189,88,112,32
XO 590 DATA 16,116,198,206,200,232,192,10
   2,208,233,160,144,162,0,189,45,112,32,
   16,116,136,230,206,189,133,112,32
GI 600 DATA 16,116,200,198,206,232,192,23
   0,208,233,96,145,205,200,145,205,96,16
   0,216,162,0,189,165,113,145,207,200
JC 610 DATA 232,192,230,208,245,169,100,1
   41,138,6,96,173,104,6,240,37,201,1,240
   ,10,32,130,116,173,10,210,201,128
SL 620 DATA 144,23,169,1,141,104,6,206,10
   5,6,240,52,173,103,6,201,180,176,45,23
   8,103,6,76,105,116,169,0,141,104
FG 630 DATA 6,206,105,6,240,29,173,103,6,
   201,50,144,22,206,103,6,173,103,6,141,
   0,208,141,1,208,24,105,16,141,2,208
DD 640 DATA 141,3,208,96,169,2,141,104,6,
   96,173,10,210,201,100,144,11,201,220,1
   44,14,173,121,6,141,105,6,96,173
GM 650 DATA 122,6,141,105,6,96,173,123,6,
   141,105,6,96,173,122,2,201,11,240,5,20
   1,7,240,39,96,173,106,6,201,50,240
IZ 660 DATA 30,206,106,6,169,1,141,128,6,
   173,106,6,141,7,208,24,105,2,141,6,208
   ,105,2,141,5,208,105,2,141,4,208
IL 670 DATA 96,173,106,6,201,190,240,248,
   238,106,6,169,2,141,128,6,76,189,116,1
   60,213,173,28,2,208,47,174,139,6
KL 680 DATA 189,64,111,141,0,210,232,142,
   139,6,174,108,6,169,2,141,28,2,189,188
   ,112,145,207,200,232,192,219,208
VF 690 DATA 245,169,1,141,109,6,142,108,6
   ,224,24,208,4,76,58,117,96,76,151,117,
   206,112,6,240,21,96,172,107,6,192
QD 700 DATA 208,208,243,173,109,6,208,5,1
   73,132,2,208,229,76,230,116,172,107,6,
   162,0,169,128,141,112,6,169,28,145
UB 710 DATA 207,200,145,207,200,169,0,145
   ,207,206,107,6,169,0,141,139,6,174,140
   ,6,189,76,111,141,0,210,232,142,140
WX 720 DATA 6,224,18,240,5,169,0,141,0,21
   0,173,107,6,201,140,208,34,160,139,169
   ,0,145,207,200,192,180,208,247,169
KB 730 DATA 208,141,107,6,169,0,141,140,6
   ,141,139,6,169,0,141,108,6,169,0,141,1
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Wow, man, this typ

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   09,6,96,169,2,141,111,6,141,130,6
NC 740 DATA 141,118,6,169,16,141,46,110,1
   69,22,141,45,110,169,0,141,114,6,141,4
   7,110,141,48,110,141,49,110,141,133
OJ 750 DATA 6,141,119,6,141,124,6,141,128
   ,6,141,129,6,141,131,6,141,132,6,141,1
   35,6,141,143,6,141,144,6,141,145
UG 760 DATA 6,169,216,141,125,6,169,128,1
   41,117,6,141,112,6,169,40,141,127,6,96
   ,173,107,6,201,162,240,5,201,161
CF 770 DATA 240,1,96,56,173,106,6,237,103
   ,6,201,7,176,1,96,201,14,176,251,162,1
   ,32,65,118,32,117,117,169,15,141
TS 780 DATA 28,2,173,30,2,208,24,169,1,14
   1,30,2,173,10,210,141,0,210,141,2,210,
   169,168,141,1,210,169,200,141,3,210
QD 790 DATA 173,28,2,208,222,141,0,210,14
   1,3,210,96,238,35,110,173,35,110,201,2
   6,240,4,202,208,243,96,169,16,141
PV 800 DATA 35,110,238,34,110,76,75,118,2
   38,114,6,173,114,6,205,127,6,240,1,96,
   169,0,141,114,6,206,46,110,173,46
UO 810 DATA 110,201,15,240,1,96,169,25,14
   1,46,110,206,45,110,173,45,110,201,15,
   240,1,96,162,0,189,112,110,157,45
PO 820 DATA 110,232,224,5,208,245,169,60,
   141,28,2,173,28,2,208,251,169,160,141,
   1,210,141,3,210,173,127,6,201,40
DZ 830 DATA 208,3,76,223,119,96,32,176,11
   4,32,54,115,32,217,115,32,105,116,32,1
   89,116,32,128,117,32,22,116,173,31
CI 840 DATA 208,201,6,240,93,201,5,240,34
   ,173,28,2,208,17,32,40,123,169,2,141,2
   8,2,24,173,197,2,105,16,141,197,2
VG 850 DATA 238,196,2,173,196,2,141,22,20
   8,76,197,118,173,30,2,208,217,169,0,14
   1,30,2,24,173,136,6,201,18,176,16
ES 860 DATA 105,9,141,136,6,172,136,6,162
   ,0,32,28,119,76,197,118,169,0,141,136,
   6,76,9,119,185,37,111,157,229,109
RK 870 DATA 200,232,224,9,208,244,96,162,
   0,169,0,157,23,109,232,208,248,162,0,1
   69,0,157,27,110,232,224,80,208,246
DA 880 DATA 169,217,141,115,6,169,168,141
   ,1,210,141,3,210,169,0,141,0,210,141,2
   ,210,141,4,210,141,6,210,162,0,189
XA 890 DATA 205,113,157,27,110,232,224,36
   ,208,245,32,152,117,32,96,122,32,115,1
   19,76,145,119,173,136,6,201,18,144
GK 900 DATA 4,201,18,240,9,169,10,162,30,
   160,60,76,141,119,169,5,162,15,160,30,
   32,44,115,96,173,30,2,208,41,169
KT 910 DATA 1,141,30,2,172,107,6,192,208,
   208,3,32,162,116,173,136,6,208,15,238,
   138,6,173,138,6,201,2,144,8,169,0
MF 920 DATA 141,138,6,32,43,116,32,90,118
   ,32,38,117,32,239,117,32,187,122,169,0
   ,133,77,76,145,119,32,208,114,32
UV 930 DATA 105,116,32,189,116,32,152,117
   ,32,22,116,96,160,0,169,50,141,106,6,3
   2,207,119,169,100,162,100,160,50
KZ 940 DATA 32,44,115,76,109,121,206,117,
   6,240,1,96,169,128,141,117,6,206,118,6
   ,208,245,173,124,6,208,240,173,136
HE 950 DATA 6,201,18,208,8,169,1,141,118,
   6,76,30,120,169,2,141,118,6,173,119,6,
   208,10,238,106,6,173,106,6,201,190
QE 960 DATA 208,19,169,1,141,119,6,206,10
   6,5,173,106,6,201,50,208,4,206,119,6,9
   6,76,189,116,173,124,6,208,6,173
HN 970 DATA 132,2,240,1,96,169,1,141,124,
   6,169,100,141,142,6,32,190,120,173,125
   ,6,141,0,210,141,2,210,169,140,141
FO 980 DATA 1,210,141,3,210,206,125,6,173
   ,125,6,201,163,240,89,201,162,240,85,2
   01,140,208,80,206,124,6,169,216,141
ON 990 DATA 125,6,169,160,141,1,210,141,3
   ,210,169,2,141,118,6,169,4,141,127,6,1
   62,40,173,129,6,240,12,162,60,169
XV 1000 DATA 1,141,127,6,169,0,141,128,6,
   173,28,2,208,251,169,1,141,28,2,32,90,
   118,202,208,240,32,117,117,162,0
BW 1010 DATA 172,125,6,189,147,110,145,20
   7,232,200,224,15,208,245,96,56,173,106
   ,6,237,103,6,201,9,176,1,96,201,13
UB 1020 DATA 144,1,96,169,0,141,126,6,174
   ,126,6,172,125,6,173,141,6,240,12,24,1
   73,142,6,105,3,141,142,6,76,5,121
OM 1030 DATA 56,173,142,6,233,3,141,142,6
   ,141,0,210,169,168,141,1,210,169,160,1
   41,3,210,189,147,110,145,207,232
QY 1040 DATA 200,224,15,208,245,173,129,6
   ,208,5,169,8,76,41,121,169,2,141,28,2,
   173,28,2,208,251,174,126,6,232,142
DG 1050 DATA 126,6,169,0,141,141,6,173,13
   1,6,208,4,224,11,208,162,169,0,141,131
   ,6,169,160,141,1,210,141,3,210,173
JI 1060 DATA 129,6,240,10,162,20,169,1,14
   1,133,6,76,100,121,162,6,238,135,6,32,
   65,118,76,126,120,32,245,119,173
UL 1070 DATA 28,2,208,31,169,1,141,28,2,1
   73,136,6,208,15,238,137,6,173,137,6,20
   1,3,144,8,169,0,141,137,6,32,43,116
IE 1080 DATA 32,67,120,173,45,110,201,16,
   208,31,32,134,118,173,135,6,201,2,176,
   18,32,223,122,32,245,122,32,83,122
HH 1090 DATA 32,150,122,32,187,122,76,177
   ,121,76,196,121,32,187,122,169,0,133,7
   7,76,109,121,160,45,169,126,141,106
PW 1100 DATA 6,32,207,119,32,115,119,169,
   1,141,129,6,173,136,6,208,9,169,200,16
   0,200,162,200,32,44,115,173,30,2
EL 1110 DATA 208,24,169,1,141,30,2,32,43,
   116,206,130,6,173,130,6,208,8,169,2,14
   1,130,6,32,162,116,173,28,2,208,24
JY 1120 DATA 169,8,141,28,2,32,67,120,173
   ,124,6,240,11,173,128,6,201,1,240,45,2
   01,2,240,47,173,45,110,201,16,208
WU 1130 DATA 21,32,134,118,32,223,122,32,
   245,122,32,83,122,32,150,122,32,187,12
   2,76,52,122,32,111,120,32,187,122
VN 1140 DATA 169,0,133,77,76,228,121,32,1
   74,116,76,30,122,32,212,116,76,30,122,
   160,0,185,189,110,153,38,110,200
KN 1150 DATA 192,16,208,245,173,34,110,20
   5,29,111,176,3,76,132,122,208,11,173,3
   5,110,205,30,111,176,3,76,132,122
KD 1160 DATA 173,34,110,141,29,111,173,35
   ,110,141,30,111,173,29,111,141,63,110,
   173,30,111,141,64,110,169,16,141
CQ 1170 DATA 65,110,96,173,133,6,208,5,16
   0,40,76,172,122,160,12,162,0,32,193,11
   5,160,0,76,172,122,162,0,185,205
GP 1180 DATA 110,157,67,110,232,200,224,4
   0,208,244,96,173,31,208,201,3,240,5,20
   1,6,240,4,96,76,176,118,32,176,114
QV 1190 DATA 32,22,116,32,105,116,32,189,
   116,32,128,117,32,217,115,76,41,119,16
   9,167,141,1,210,141,3,210,169,168
YF 1200 DATA 141,5,210,141,7,210,169,0,14
   1,8,210,96,162,0,160,0,189,164,111,141
   ,0,210,232,189,164,111,141,2,210
FX 1210 DATA 232,189,164,111,141,4,210,23
   2,189,164,111,141,6,210,169,5,141,28,2
   ,32,187,122,173,28,2,208,248,232
XX 1220 DATA 200,192,22,208,210,96,32,223
   ,122,169,166,141,5,210,141,7,210,174,1
   43,6,172,144,6,192,26,208,1,96,189
QE 1230 DATA 51,114,141,0,210,232,189,51,
   114,141,2,210,232,189,51,114,141,4,210
   ,232,189,51,114,141,6,210,173,145
OK 1240 DATA 6,201,5,240,4,238,145,6,96,1
   69,0,141,145,6,142,143,6,238,143,6,238
   ,144,6,96
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●

ping is really heavy

TALKING TO THE DRIVE

The Secrets of SIO

Phil Cardwell explores the disk drive interface and provides information and programs that could form the basis of a sector editor

THEORY AND OPERATION

Most people have a grave misconception about the way the Atari computer communicates with its peripherals. Set up an IOCB, call the Central Input/Output (CIO) utility, the job's done and all because of the easiest I/O system on any 8-bit home computer. Unfortunately, if that was your notion, you're wrong!!

CIO acts as a middleman, true communication is established by the Serial Input/Output (SIO) routines. SIO actually transmits and receives data to all devices on the serial bus, and is responsible for checksums, baud calculations etc.

SIO has a well-defined protocol that is associated with things like Command and Data Frames, Acknowledgement, Nonacknowledgement and Command and Bus Errors. If those bits of jargon scared you witless then fear not, for SIO, in some cases, is as easy to use as CIO, and the average mortal in 99.9% of all cases need never know about them, (unless you have an EPROM burner and want to cause trouble by partially re-writing the operating system).

Probably the single most common use of SIO is for disk access, usually in the form of sectors, so that seems a good place to start. SIO, like CIO, requires data to work. In a similar fashion to CIO, SIO takes its data from a Device Control Block, which resides at $0300 - $030B (768-779 decimal). Here we come across our first major difference, there is only one DCB as opposed to eight IOCB's, yet they share a similar structure.

Take a look at the three tables, which contain a list of addresses, labels and details of commands associated with the DCB. Anyone who uses a non-standard disk drive, such as the Indus GT, or in some cases an upgraded one, (i.e fitted with a US Doubler, Happy enhancement, etc.) may be interested to know that if you use the values of 78 and 79 in DCOMND, it is possible to read/write from/to the drive configuration block. There will be a small tutorial and program about this later.

To call SIO, not all of the DCB has to be set but if it is, in some cases it may prevent errors occurring. As a rule though, here is what should be done to read/write a sector. First store a value of 49 into DDEVIC, to tell SIO what kind of device we will be accessing. Then the drive number into DUNIT. The command value should then be placed into DCOMND and DSTATS should be set to 64 for a read or 128 for a write. The lo/hi bytes of the address of the data buffer are then put into DBUFLO/DBUFHI. Next DBYTLO and DBYTHI should be set, if the disk density is single, then POKE 776 with 128 and 777 with 0. If double density is needed then POKE 776 with 0 and 777 with 1. DAUX1/2 then gets any device specific information, in our example this would be the lo/hi value of the sector number and all that remains is to call SIO at $E459.

Well if all the info from the above has been absorbed, type in Listing 2. This is a rather simple, but well commented, 'read a sector and display the contents' routine. With a bit of imagination and if you follow the REM statements carefully you could convert this routine to form the basis for a reasonable disk sector editor.

DISK DRIVE CONFIGURATION

In 1978, Atari displayed a prototype double density disk drive at several computer shows, the 815. A company at one the shows, Percom Data Corporation, had seen the prototypes and decided a better drive could be built, which would also sell for less. Power without the Price again.

Percom manufactured single and double sided drives in both single and double density, and as they wanted to keep compatibility with the 810 and 815 drives, they created the 'Configuration Block'. By doing this, Percom created a standard by which all other Atari-compatible drive manufacturers adhered to. All that is bar one, Atari. For reasons unknown, the 815 was dropped, before it even hit the market. Then in 1984, along with the new XL range of computers came the 1050 with enhanced density, which is somewhere between single and double density, and failed to conform to the Percom configuration block format. Typical Atari policy of non-standardization.

The 810 or 1050 drives, to the best of my knowledge, do not have a configuration block, or anything resembling it, unless it is integral to the software i.e. DOS 2.5.

A configuration block is a set of 12 bytes within the memory of the drive's controlling microprocessor. To read or write the config block, we use the 'N' and 'O' commands. These closely resemble the normal SIO read/write commands, except data length is always 12 bytes and no sector number is needed. Table 4 shows the meaning of each byte in the block.

To avoid confusion, the first thing to explain about the block is the double byte values. They are in high-byte/low-byte order, the opposite of the normal 6502 practice, because thats how the Percom drive microprocessor operates. Not all these values have meaning to all manufacturers, either. Some will only allow 2 or 3 values to be changed.

continued on page 15

SIO - Disk Drive Configuration

```
UA 10 REM ****************************
TC 20 REM * DISK DRIVE CONFIGURATION *
HD 30 REM *           By             *
ZV 40 REM *      Phil Cardwell       *
GR 50 REM *--------------------------*
SK 60 REM *  NEW ATARI USER - 1990   *
UG 70 REM ****************************
BF 80 REM
VW 90 DIM TEMP$(20),CONFIG$(12),CMD$(1),SIO$(14)
QO 100 SIO$="h Yd-┘┘.T)♥.U♦":SIO=ADR(SIO$)
MS 110 GRAPHICS 0:? "  *** DISK DRIVE CONFIGURATION ***":? :POKE 710,0:POKE 709,15
BC 120 ? "THIS PROGRAM WILL NOT FUNCTION      PROPERLY ON AN 810 OR 1050 WITHOUT    SUITABLE MODIFICATION     "
AQ 130 ? :? :? "Enter Drive No. ";
EZ 140 INPUT #16,DRIVE
MA 150 ? "↑                          "
TG 160 IF DRIVE<1 OR DRIVE>8 OR DRIVE<>INT(DRIVE) THEN RUN
UB 170 ? "↖  *** DISK DRIVE CONFIGURATION ***":POKE 710,0:POKE 709,15
PC 180 ? :? "Drive #";DRIVE:?
UP 190 GOSUB 810
UL 200 IF SIOSTATUS<128 THEN 250
JT 210 ? :? "Unable to read Configuration Block"
QQ 220 ? "Disk Drive Error #";SIOSTATUS
NI 230 ? "Program Aborted"
TQ 240 STOP
CP 250 ? "No. of Tracks           ";TRACKS
VD 260 ? "Sectors per Track       ";SPT
GA 270 ? "Bytes per Sector        ";BPS
LU 280 ? "Density                 ";DENSITY;" - ";
GM 290 IF DENSITY=0 THEN ? "SINGLE"
BM 300 IF DENSITY=4 THEN ? "DOUBLE"
WH 310 IF DENSITY<>0 AND DENSITY<>4 THEN ? "UNKNOWN"
KO 320 ? "No. of Sides            ";SIDES
IP 330 ? "Step Rate               ";STEPRATE
RD 340 ? "Drive Selected=         ";SELECT
QV 350 ? "           ACIA=        ";ACIA
MI 360 ? " Miscellaneous=         ";MISC
QX 370 ? :? "OPTIONS:"
BE 380 ? :? "▸0 - Quit Program"
ST 390 ? "▸1 - Change Drive Settings"
NG 400 ? "▸2 - Change Drive Number"
ZC 410 ? :? "Choice ";:INPUT #16;CHOICE
VK 420 IF CHOICE=0 THEN EXIT=USR(58484)
CZ 430 IF CHOICE=2 THEN 110
QX 440 REM
QZ 450 REM
WU 460 REM CHANGE THE VALUES OF THE
WS 470 REM CONFIG BLOCK
RF 480 REM
RH 490 REM
NB 500 ? "↖":? "CHANGE DRIVE SETTINGS"
ZZ 510 ? :? "Hit RETURN to leave a value unchanged"
CM 520 ?
EU 530 ? "TRACKS = ";:TEMP=TRACKS
MW 540 GOSUB 750:TRACKS=TEMP
DY 550 ? "Sectors per Track ";:TEMP=SPT
XU 560 GOSUB 750:SPT=TEMP
FW 570 ? "Bytes per Sector ";:TEMP=BPS
NM 580 GOSUB 750:BPS=TEMP
AL 590 ? "Sides ";:TEMP=SIDES
PO 600 GOSUB 750:SIDES=TEMP
WE 610 ? "Density ";:TEMP=DENSITY
WO 620 GOSUB 750:DENSITY=TEMP
CP 630 ?
EC 640 ? "Step Rate ";:TEMP=STEPRATE
PH 650 GOSUB 750:STEPRATE=TEMP
XA 660 ? "Drive Select ";:TEMP=SELECT
IB 670 GOSUB 750:SELECT=TEMP
CO 680 ? "ACIA ";:TEMP=ACIA
FT 690 GOSUB 750:ACIA=TEMP
YX 700 ? "Misc. ";:TEMP=MISC
XS 710 GOSUB 750:MISC=TEMP
XA 720 GOSUB 960
VZ 730 Ir SIOSTATUS<128 THEN 170
SF 740 ? :? "Unable to Write Configuration Block":GOTO 220
RC 750 REM
RE 760 REM
RG 770 REM
UB 780 ? " [";TEMP;"] ?";:INPUT #16;TEMP$
FQ 790 IF LEN(TEMP$) THEN TEMP=VAL(TEMP$)
ZE 800 RETURN
QV 810 REM
ZF 820 REM GET VALUES FROM CONFIG BLOCK
QZ 830 REM
YO 840 CONFIG=ADR(CONFIG$):ADDR=CONFIG
NB 850 CMD$="N":GOSUB 1130
UH 860 TRACKS=PEEK(CONFIG+0)
HT 870 STEPRATE=PEEK(CONFIG+1)
IQ 880 SPT=PEEK(CONFIG+2)*256+PEEK(CONFIG+3)
VI 890 SIDES=PEEK(CONFIG+4)+1
XG 900 DESNITY=PEEK(CONFIG+5)
NZ 910 BPS=PEEK(CONFIG+6)*256+PEEK(CONFIG+7)
ZK 920 SELECT=PEEK(CONFIG+8)
UC 930 ACIA=PEEK(CONFIG+9)
NZ 940 MISC=PEEK(CONFIG+10)*256+PEEK(CONFIG+11)
ZP 950 RETURN
RG 960 REM
NX 970 REM PUT NEW VALUES -> CONFIG BLOCK
RK 980 REM
YZ 990 CONFIG=ADR(CONFIG$):ADDR=CONFIG
GQ 1000 POKE CONFIG+0,TRACKS
LZ 1010 POKE CONFIG+1,STEPRATE
MF 1020 POKE CONFIG+2,INT(SPT/256)
HM 1030 POKE CONFIG+3,SPT-PEEK(CONFIG+2)*256
ZZ 1040 POKE CONFIG+4,SIDES-1
YQ 1050 POKE CONFIG+6,INT(BPS/256)
CF 1060 POKE CONFIG+7,BPS-PEEK(CONFIG+6)*256
GJ 1070 POKE CONFIG+8,SELECT
ZA 1080 POKE CONFIG+9,ACIA
QJ 1090 POKE CONFIG+10,INT(MISC/256)
LE 1100 POKE CONFIG+11,MISC-PEEK(CONFIG+10)*256
MZ 1110 CMD$="O":GOSUB 1130
AH 1120 RETURN
IH 1130 REM
XT 1140 REM CALL SIO TO READ/WRITE
AD 1150 REM THE CONFIG BLOCK
IQ 1160 REM
PF 1170 POKE 768,ASC("1")
EL 1180 POKE 769,DRIVE
NB 1190 POKE 770,ASC(CMD$)
EI 1200 POKE 771,128
QI 1210 IF CMD$="N" THEN POKE 771,64
WA 1220 POKE 773,INT(ADDR/256)
VI 1230 POKE 772,ADDR-256*PEEK(773)
SB 1240 POKE 774,3
QY 1250 POKE 775,0
OP 1260 POKE 776,12:POKE 777,0
CY 1270 SIOSTATUS=USR(SIO)
BB 1280 RETURN
```

SIO CONFIGURATION TABLES

TABLE 1
DCB LAYOUT

Location Hex.	Dec.	Label	Description
300	768	DDEVIC	The type of device to access. See Table 2 for device ID's
301	769	DUNIT	Disk drive number (1 - 4)
302	770	DCOMND	The operation command. In most cases the value here will have an ATASCII equivalent. Refer to Table 3
303	771	DSTATS	Double use: (1) Before calling SIO, it is used to indicate the direction of data. A value of 64=receive data, 128-send data (2) After the SIO operation, carries the Status code
304	772	DBUFxx	Lo/Hi byte address of data buffer to read from/write to
306	774	DTIMxx	Lo/Hi bytes of timeout value. SIO waits this many seconds before giving up
308	776	DBYTxx	Number of bytes to transfer. (128=Single density, 256=Double density)
30A	778	DAUXx	Device specific information is stored here, such as the disk sector number to access

Note: xx = a two byte address

TABLE 2

Device	Type	Identification Values	
Disk drives	D1-D4	49-52	$31-$34
Printer	P	64	$40
RS-232 Ports	R1-R4	80-83	$50-$53

TABLE 3
SIO COMMANDS

Command	Value	ATASCII
Download	32	space
Format	33	!
Put (No verify)	80	P
Read spin	81	Q
Read	82	R
Status	83	S
Read Address	84	T
Motor On	85	U
Verify Sector	86	V
Write (Verify)	87	W

Note: See text about additional disk commands.

TABLE 4
DISK DRIVE CONFIGURATION BLOCK

Offset	No. Of Bytes	Description
+0	1	Number of Tracks
+1	1	Step Rate
+2-3	2	Sectors per Tracks
+4	1	Number of Sides/Heads
+5	1	Density
+6-7	2	Bytes per Sector
+8	1	Drive Present
+9	1	Serial Rate Control
+10-11	2	Miscellaneous

TABLE 5
US Doubler
Sample Configuration Block

Offset	Description	Value
+0	Number of Tracks	40 *
+1	Step Rate	1 *
+2	Sectors/Track Hi	0 *
+3	Sectors/Track Lo	18/26
+4	Number of Sides	0 *
+5	Density	0/4
+6	Bytes/Sector Hi	1/0
+7	Bytes/Sector Lo	0/128
+8	Drive Present	55 *
+9	Serial Rate Control	0 *
+10	Misc./Reserved Hi	0 *
+11	Misc./Reserved Lo	0 *

Note: An asterisk by the value indicates the byte is unused

```
UA 10 REM ***************************
XS 20 REM * SIO SECTOR READ PROGRAM  *
HD 30 REM *          By              *
ZV 40 REM *      Phil Cardwell       *
GR 50 REM *-------------------------*
SK 60 REM *  NEW ATARI USER - 1990   *
UG 70 REM ***************************
BF 80 REM
FQ 100 REM * Assume we will work with
TA 110 REM * drive #1 and density is
UQ 120 REM * single, i.e. =1
QS 130 REM
VK 140 DIM BUFFER$(256),SIO$(16)
WS 150 SIO$="h Yd-┘┘,T)♥,U◆"
QX 160 ADDR=ADR(BUFFER$)
GU 170 DRIVE=1
GC 180 DENSITY=1
RE 190 REM
SC 200 REM * Force a READ command
QP 210 REM
ND 220 DIM CMD$(1):CMD$="R"
JG 230 ? "What sector to display";
PG 240 INPUT SECTOR
QX 250 REM
YY 260 REM * Call SIO routine
RB 270 REM
VP 280 GOSUB 560
RF 290 REM
DL 300 REM * Display Sector
QQ 310 REM
CD 320 GRAPHICS 0:POKE 710,0:POKE 709,15
RC 330 ? "Drive #";DRIVE;"  Sector No. ";
   SECTOR;"  Status=";SIOSTATUS
CO 340 ?
AN 350 FOR LINE=0 TO DENSITY*128-1 STEP 8
OU 360 BYTE=LINE:GOSUB 510:? ":";
EM 370 FOR CNT=0 TO 7
RD 380 BYTE=PEEK(ADDR+LINE+CNT):GOSUB 510
   :? " ";
XX 390 NEXT CNT
DZ 400 FOR CNT=0 TO 7
VG 410 BYTE=PEEK(ADDR+LINE+CNT)
MB 420 IF BYTE>127 THEN BYTE=BYTE-128
DD 430 ? CHR$(27);CHR$(BYTE);
XO 440 NEXT CNT
CR 450 ?
EU 460 NEXT LINE
CV 470 ?
NQ 480 GOTO 230
MB 490 REM .........................
AI 500 REM DEC TO HEX CONVERTER
MR 510 TRAP 530
EZ 520 DIM HX$(16):HX$="0123456789ABCDEF"
JA 530 TRAP 40000
LT 540 HX=INT(BYTE/16)+1:? HX$(HX,HX);:HX
   =BYTE-16*HX+17:? HX$(HX,HX);
ZL 550 RETURN
CT 560 REM ┌──────────────────────────┐
ZT 570 REM |  DISK SECTOR I/O ROUTINE |
ZS 580 REM |                          |
ZE 590 REM | Variables:               |
ZD 600 REM |                          |
KL 610 REM |  SECTOR  = sector number |
CM 620 REM |  DRIVE   = drive number  |
FA 630 REM |  ADDR    = buffer address|
GG 640 REM |  CMD$    = command       |
VE 650 REM |  DENSITY= 1-Single       |
OW 660 REM |           2-Double       |
DF 670 REM └──────────────────────────┘
VS 680 POKE 768,ASC("1")
MF 690 POKE 769,DRIVE
NZ 700 POKE 770,ASC(CMD$)
GQ 710 POKE 771,128:REM assume read
YW 720 IF CMD$="R" THEN POKE 771,64
NV 730 POKE 773,INT(ADDR/256)
DE 740 POKE 772,ADDR-256*PEEK(773)
MR 750 POKE 774,3
LP 760 POKE 775,0
PR 770 POKE 776,128:POKE 777,0
XW 780 IF DENSITY=2 THEN POKE 776,0:POKE
   777,1
HI 790 POKE 779,INT(SECTOR/256)
QO 800 POKE 778,SECTOR-256*PEEK(779)
GA 810 SIOSTATUS=USR(ADR(SIO$))
ZI 820 RETURN
```

Listing 2 - A simple 'get sector' routine

The Step Rate controls the speed of the drive's head stepper motor. There is no universal meaning to this value, a case of different manufacturers - different values. This also applies to the Serial Rate Control and Miscellaneous values. If altered though some drives may remember them, and others ignore them.

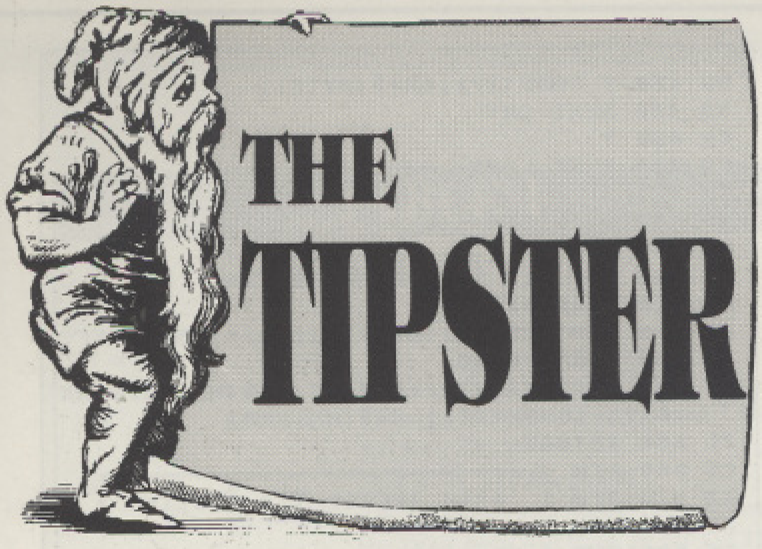
Altering the value of Drive Present acts as a software drive disable, as far as the computer is concerned.

Number of Tracks, Sectors per Track, Bytes per Sector and Density should all be self-explanatory, though Density will read only 0=Single or 4=Double.

To amend the configuration block, type in listing 1. This displays the contents of the configuration block and allows changes to be made. The masochistic types may want to try and find out what values their drive will accept, and if they ignore the value or not. This program will NOT work on a 810 or 1050 unless they have an internal modification.

A sample configuration block with the values returned after an SIO request is shown in table 5. This was taken from ICD's US Doubler, as it is a popular modification, and conveniently demonstrates how the values can vary. Firstly note the values, that are not used, particularly the Drive Present flag (which if altered, does turn the drive off). Also a small problem which I encountered and can't provide an answer to. The configuration table shown was taken from a drive that was booted up on a double density disk, yet the Density values returned, show it to be 128 bytes per sector and gives a single density. Anyone who can explain this please let me know.

That's about it for this exploration of SIO. Some of the information may be a little advanced or obscure but if you study the programs as well as the tables, it should all become clear.



AIRSTRIKE II

We are starting off with these comprehensive play tips from Adrian Graham of Co. Wicklow, Ireland who says that the secret is to learn to fly your craft skilfully. To shoot rockets leave a bit of space behind you to reverse and tease the rockets out. If the bombs falling from the ceiling are bullet-proof then pause the game till they move to a different position, then fly round them.

If the doors in the girders are too difficult to shoot, pause the game. Bombing fuel and ammo trucks is tricky sometimes. Be careful on harder levels because then the ammo trucks fight back. Going through tunnels requires skill as your fighter will disintegrate at the slightest bump. They don't make them like they used to! Moving mouths of caves can be beaten by pausing the game. You stop moving but the cave mouth does not stop.

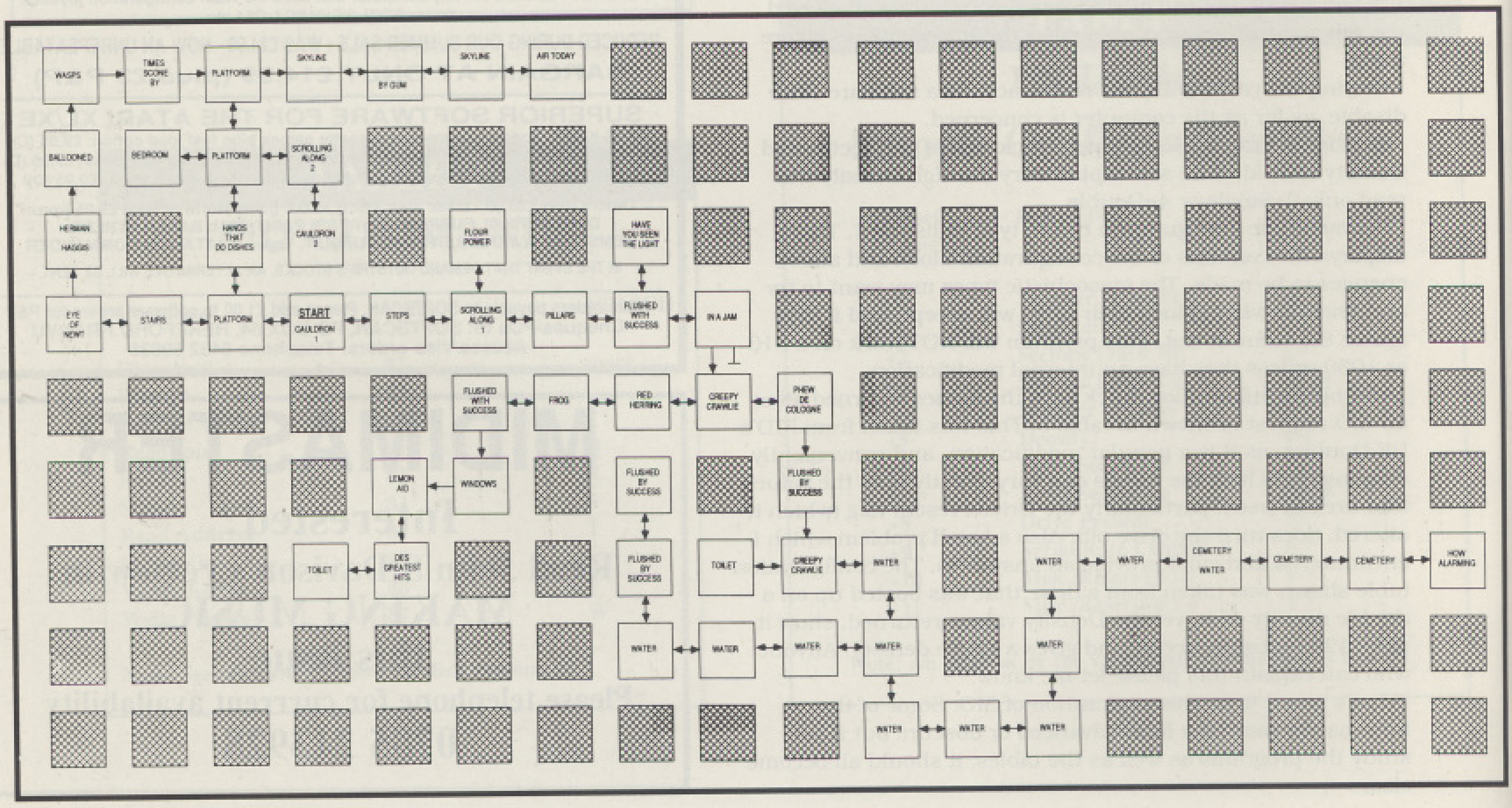
Shooting defenders must be shot dead centre. Their bullets can be shot too. The odd things like two squares held by a rubber band can be removed by getting yourself in a safe place and pausing. They keep going past you.

Welcome to another Tipster column in which we have a number of answers for the cries of help from the last issue, an encouraging response from all of you for which the Tipster gives his thanks. Also there is the promised map for Blinky's Scary School together with a complete walk through. This issue sees a transitional Tipster column with the Tipster's role being taken over by guess who? Next time round we should have a full time Tipster back again so make sure you start him off well with a good helping of hints, tips, maps and solutions in response to this issue.

See you next time, meantime here we go ....

BLINKY'S SCARY SCHOOL

From Paul Adams, of Birmingham comes this complete guide to Blinky's Scary School - a full run through of the game with a map. Be warned this is the whole solution and it can spoil the game so only go as far as you need. Thanks to Paul for the most professionally submitted map and solution The Tipster has ever seen!



A CORNUCOPIA OF TIPS

from Lee Colclough, just down the road in Tamworth.
There has to be something here for everyone!

WARRIORS OF RAS

Create a new character in the Dunzhin and play him till he's around 10th level then transfer him over to Kaiv and use this character to play. It will be much easier.

HEAD OVER HEELS

To get past the robots wearing jet packs run up to the last wall and wait. When the robots are really close, run right and when he changes direction, run forward. You'll get past him without trouble.

ASTEROIDS

When there are only 1 or 2 small asteroids left, thrust up to the top right-hand corner and wait. When a saucer comes, shoot it either direct or using the 'wraparound' effect. Doing this a few times will bump up your score a lot.

MISSILE COMMAND

Press CONTROL-C and you will start on level 5. Also, pressing CONTROL-Z a few times occasionally gives a surprise.

CENTIPEDE

Remain stationary and keep shooting. This will build a 'tunnel' into which the centipedes will fall.

DEFENDER

On screens 4 onwards all the Pods will be in the same place at the start of the screen. Move in close and smart bomb. You get points for the pods and the swarmers inside them. To destroy swarmers, get in behind them and follow them closely. They won't turn round and they won't fire back. If a baiter is after you and you only have 1 or 2 aliens left, go after them and ignore the baiter. You don't have to shoot him. If you have 1 humanoid left and are close to levels 5, 10 etc. then let a lander pick him up, shoot the lander, catch the man but don't put him down. The landers get quite frantic about this and can be picked off easily.

TWILIGHT WORLD

The solution to the first half of Trick or Trap is: Get blue key - R - D - get green key - L - get blue key - R - R - D- get blue key - U - left all the way - get green key - U - R - R - R - R - get blue key - U- get blue key - R - get green key - D - R - D - get blue key - U - R - D - get blue key - U - R - U - L - get green key - R - D - R - get blue key - R - get blue key - U - L - get green key - D - R - D ..... the rest is easy!

The solution to screen H, Grid of Iron is: Get orange key and go left, open orange door, get green key, go up, get orange key, go left and open orange door, go left to finish!

These are the only major problems in Twilight World, the rest is relatively easy.

Well done, Lee, what a lot of help for everyone!

START - STEPS - SCROLLING ALONG 1 - **FLOUR POWER (TAKE)** - SCROLLING ALONG 1 - PILLARS - **FLUSHED WITH SUCCESS (TAKE)** - IN A JAM - CREEPY CRAWLIES - **PHEW DE COLOGNE (TAKE)** - CREEPY CRAWLIES - RED HERRING - FROG - FLUSHED WITH SUCCESS - WINDOWS - LEMON AID - DES GREATEST HITS - TOILET - SCROLLING ALONG 1 - STEPS - CAULDRON 1 **(DEPOSIT FLOUR AND COLOGNE)** - STEPS - SCROLLING ALONG 1 - PILLARS - FLUSHED WITH SUCCESS - IN A JAM - CREEPY CRAWLIES - **RED HERRING (TAKE)** - FROG - FLUSHED WITH SUCCESS - WINDOWS - **LEMON AID (TAKE)** - DES GREATEST HITS - TOILET - SCROLLING ALONG 1 - STEPS - **CAULDRON 1 (DEPOSIT RED HERRING AND LEMON AID).** *BLINKY WILL NOW FLOAT UP TO THE NEXT LEVEL.* **CAULDRON 1** - PLATFORM - HANDS THAT DO DISHES - PLATFORM - SCROLLING ALONG 2 - PLATFORM - HANDS THAT DO DISHES - PLATFORM - STAIRS - **EYE OF NEWT (TAKE)** - HERMAN HAGGIS - BALLOONED - WASPS - TIMES SCONE BY (TAKE) - PLATFORM - SKYLINE - BY GUM - SKYLINE - **AIR TODAY (TAKE)** - SKYLINE - BY GUM - SKYLINE - PLATFORM - PLATFORM - SCROLLING ALONG 2 - **CAULDRON 2 (DEPOSIT EYE OF NEWT, SCONES, AIR TODAY)** - SCROLLING ALONG 2 - PLATFORM - PLATFORM - SKYLINE - BY GUM (TAKE) - SKYLINE - PLATFORM - PLATFORM - SCROLLING ALONG 2 - **CAULDRON 2 (DEPOSIT BY GUM). GO TO 'HAVE YOU SEEN THE LIGHT' (TAKE)** - FLUSHED WITH SUCCESS - IN A JAM - PHEW DE COLOGNE - FLUSHED WITH SUCCESS - CREEPY CRAWLIE - WATER - CEMETERY - **HOW ALARMING (TAKE)** - GO TO BEDROOM - JUMP ON THE PLATFORM ABOVE THE BED AND THE ALARM CLOCK IS ACTIVATED. *GAME COMPLETED.*

TURN THE PAGE FOR POTHOLE PETE



HAWKQUEST

Simon Williams has also just finished the cassette version of Hawkquest and provides this cheat for those of you who can't get through to the end and desperately want to see the end game screens.

Load up the 'End Screen and Animation tape' and type ABLTXYZZHA which is the code made up from all five levels (AB)(LT)(XY)(ZZ)(HA)

AND THE WINNER IS ...

It was a hard decision this time with a few people pitching in with a lot of help but the prize of the *FIVE ATARI ROM CARTRIDGES* goes to Philip Murphy for Pothole Pete and a lot of other hints.

This time round a really weird prize - *A SET OF AIR DRUMS*. What? Great fun these, a couple of drum sticks that you just hit nothing with to create a myriad of drum sounds, a bit hard to explain but great fun to play with (the batteries are already run down!). If you want a weird prize, get those hints and tips in now!

LEE NELSON still hasn't had his videos from the last Tipster because we lost his address when the old Tipster tippled off. Get in touch Lee and we'll send those videos.



POTHOLE PETE

An almost complete game guide comes from Philip Murphy, Co. Cork, Ireland for this game. Philip has been playing this for quite a while.

Level 1: Stand beside toadstool. Jump over toadstool as spider begins his run to the right and then jump again as he returns. Climb down the ladder. Jump over the toadstool and collect the dynamite. Quickly run off the platform and fall onto the ladder. Jump over boulders. When scorpion begins its run to the right, jump over the toadstool and jump again over the scorpion. Watch the poisonous ivy. Get as close to the wall as possible and drop the dynamite. Don't move. When the wall explodes walk through .... you are now on level 2.

Level 2: Walk off the first two platforms. When bats are flying to the right, fall onto the bottom platform and jump the bat. Jump across and get the dynamite and then walk off the platform and wait. When the lower bat comes, jump over it and keep on jumping until you get back up where you started. When the bat flies to the right wait beside the toadstool and jump the bat and the toadstool at the same time. Drop the dynamite beside the wall and RUN through to level 3.

Level 3: Climb down the ladder and watch the bat. Walk to edge of platform and jump slightly behind the bat as he flies in the same direction. Collect the dynamite and jump back across and climb up the ladder. Run down the platforms avoiding the bats (in some cases the top bat get stuck on the ivy). Climb down the ladder. Jump over toadstool and drop dynamite. When the wall explodes walk through to level 4.

Level 4: When bats fly to the left, keep your finger on fire and you will keep jumping. Jump across to small platform and then across again and stand beside the toadstool. When the bat flies to the right collect the dynamite. wait for the bat to pass, then jump across to small platform and jump and then run across the top platform and drop the dynamite beside the wall. When the wall explodes walk through to level 5.

That should keep you busy for while ... someone else can take over from there!

MILK RACE

Stay in 1st gear all the time as this keeps you at a good speed and also saves you energy. Never ride right at the edge of the screen as you will easily crash, stay nearer the middle if possible.

SCREAMING WINGS

If you want to go on a few levels, then start the game as normal and when the large plane comes on, don't shoot it but dodge it and keep dodging it. The screen will keep scrolling to the end of that level. You can keep doing this through all levels. I reached level 61 and then got bored.

Thanks to Dean Chadwick for these two tips

Here's some more from Philip Murphy (see the Pothole Pete solution)

DRACONUS: Go to a room which has a Morph slab with a rat running across it. Leave the rat to drain your energy, and as he is almost about to touch you to drain your last drop of energy, pull down on the joystick so that you will turn into a frognewt. When you return back into Frognum your energy level will be flat but you will still be able to kill everything without being killed yourself. You can now walk through all the nasties - except the Tyrant Beast!

ZORRO: This might help with Eric Foley's problem. don't collect the bags of money (just in case) because if you get killed in the jail you will be thrown back down into the graveyard. Forget about the short-cut with the barrels. Go up through the ladder beside the icons and carry on the game the way Stephen Garbett explained in Issue 43.

POLE POSITION: If you are having trouble with finishing the 8 laps because of the corners in the road coming too fast put a book or weight on the space bar and everything will slow down. This tip also works on many other games!

In return Philip needs **HELP** on **ROCKFORD** where he is completely stuck on the 9th screen (the first of the cowboy screens). Apparently they leave you 6 coins short. What's the answer?

HELP WANTED

Paul Cole of Stanhope, Ashford has finished **ALTERNATE REALITY - THE DUNGEON**, but is extremely frustrated by the fact that he still does not know the Gargoyle's name. Can anyone help him?

Darren Chenery wants putting out of misery with some help on playing **E.T. PHONE HOME** and **BATTLEZONE**.

And of course there are lots more folks wanting help on all sorts of games, so if there is something you have discovered that hasn't yet appeared in The Tipster column send it in to help others out.

Send your hints, tips, maps and solutions to

THE TIPSTER
NEW ATARI USER
P.O. BOX 54, STAFFORD, ST16 1DR

A TIPSTER EXCLUSIVE!



Every reader sending in a NEW hint, tip, cheat or map will receive THE TIPSTER's unique badge, whether the contribution is used or not. The only qualification is that the tip must not have been used before in this column (ripping pages out of old Atari User mags doesn't count either!). Please note that we cannot indicate whether your hint or tip will appear in a future issue - it might, it might not - depends what The Tipster had for dinner when he comes to type up the column.

Fiction

THE TIMESAVER?

a story by Gordon F. Hooper

People generally buy a micro-computer for one of two reasons: entertainment and a hobby or to use in making routine tasks easier. There is a third reason, because everybody else has one, but people who buy one because of this generally are the ones who bought a microwave and still use it just to boil water for their instant coffee eight months later. Some technological wizards in this class even advance so far as to use the clock to time the cookies they are baking in the conventional oven, but they are few and far between.

The computer's ability to make laborious tasks so much simpler and speedier is one of its major accomplishments. If you have a large collection of virtually anything, a computer will become indispensable after you try it for record keeping. Musicians are discovering what an ST will do to simplify their lives and even give them additional means of self-expression. Writers who used to use a typewriter wonder how anything ever got created given all the limitations they now realize it has compared to a computer. Business would come to a virtual standstill today if deprived of them.

It is hard to believe that we are just at the beginning of the many marvellous things the home computer will provide people with in the coming years. As a matter of fact, if technology pertaining to computers continues to accelerate at a greater pace every day as it has been doing for the past few years, even science fiction writers will be unable to predict what these electronic bean counters will be capable of 50 years from now.

IT'S SUPPOSED TO DO EVERYTHING

Given all this, why does the computer I have provided with a home not fulfil all my expectations? I didn't buy an Atari to enable the Tramiel family to purchase more things to win the contest that declares 'The boys with the most toys win'. I bought the miserable thing to make my life easier. I took it home, set it up according to the instructions in the manuals and only then discovered I might as well devote half my remaining life-span to learning how to force it to make my life easier and increase my leisure hours. Except that all my leisure hours in the foreseeable future would be spent trying to master a collection of silicon and integrated circuits that doesn't have an iota of conscience.

Finally I realized this machine wasn't like a vacuum cleaner where you could read the instructions, experiment for ten minutes and then suck up all the dirt within range of the extension cord. My dirty magazines and videos excepted, of course. No, this malignant monster I had brought home of my own free will was going to demand my working hours plus whatever time remained in a 24 hour period. Whenever I decide that I'm not required to learn every insignificant detail of the computer, I might be able to fit some sleeping time into the day. The problem is that the miserable machine intrigues me and I want to learn everything I can about it. Believe me, you have to be a masochist to want to know that POKE 65,0 turns off I/O noise.

ERROR? WHAT DOES THAT MEAN?

Today I was using a word processing program to write this article. I booted it up and got an error 140. Hmmm. Never saw that one before. A quick check of my manual reveals "Serial Frame Error - Bit 7 of SKSTAT in the POKEY chip is set. This means that communication from the device to the computer is garbled. This is a very rare error and it is fatal." Fatal? What the hell does that mean? Whatever it means, the word 'fatal' brings to mind that somewhere along the line this is going to cost me money I was going to spend on something frivolous, like food. The manual then goes on to say (when I get enough courage to read further), "If it occurs more than once, have your device or computer checked". It occurred four times, because I didn't believe it the first three times. Now I do. "You can also remove the peripherals one at a time to isolate the problem". Great idea. Maybe I'll trace it to the hard drive that relieved me of $999.99 (plus tax and extended warranty) yesterday.

But God takes pity on me. She (the ol' Gordo ain't no chauvinist, ladies) leads me to discover that one of my cables is kinked and straightening it out solves the problem. Too bad I can't straighten out my disturbed mind as easily, then I wouldn't have to be apologising to females all the time. The only problem left now is I'm so shook up that me and a bottle of vodka are going to have a heartfelt meeting, so there will be no more writing today. See what I mean? If I still had my typewriter, this article would be in the mail and I could have started typing something that would pay real money, like blackmail letters or televangelism speeches.

HOW DO YOU STOP THE THING?

A friend of mine who works as a machinist now uses a computerized lathe to fabricate air nozzles for use in the navy. It can machine tolerances a little more accurately and at a faster speed than he used to be able to do manually. No problem here, you say? Sounds like it made an improvement? Maybe so, except he had to take a six-month training course to learn how to operate a computer and how to program it. Now he goes to work, writes a program to manufacture the nozzles to the required dimensions, loads the lathe with the tools required, watches the machine to make sure there are no snafus and then goes to the garbage can to pick out the completed nozzles so he can de-burr them. Nobody can figure out how to stop the computer from dumping finished product along with the waste or to finish the job. I get the feeling if he had spent all that time just working on a lathe making nozzles, the navy would have them coming out of their yin-yang by now.

WHAT IF THEY TAKE OVER?

The next major advancement in computers is likely to be artificial intelligence. Now that s a truly frightening thought, because when you consider how fast these things progress, we ll probably have AI in home computers in the fairly near future. Our computers now are as stupid as the Chilean government spokesman who explained we should still eat their fruit because it was only slightly contaminated with cyanide. Today they only lock up, or crash, or simply send our most important files to the munchkins in the land of Oz. Can you imagine what a computer with AI will do with the program you ve worked on for six months? You know it will use its creativity to ensure that the novel you ve been typing for the last year couldn t be retrieved by the latest version of the Cray Supercomputer.

Try to think, without breaking into tears, what it will do with all that information you d rather the IRS was a little hazy on. You can bet your last byte of RAM it will figure a way to zip it out through your modem to the Feds. You won t know anything about it until the long-distance bill arrives, personally delivered by the guy with a pair of cuffs who s going to escort you to your new home for the next ten years, less time off for good behaviour. Try to remember before you leave that while it may have artificial intelligence, you as a human have the real thing, plus the hands to shove a stick of dynamite up its serial port! What makes that even sweeter is the mind-saving sense of irony that allows you to enjoy doing it.

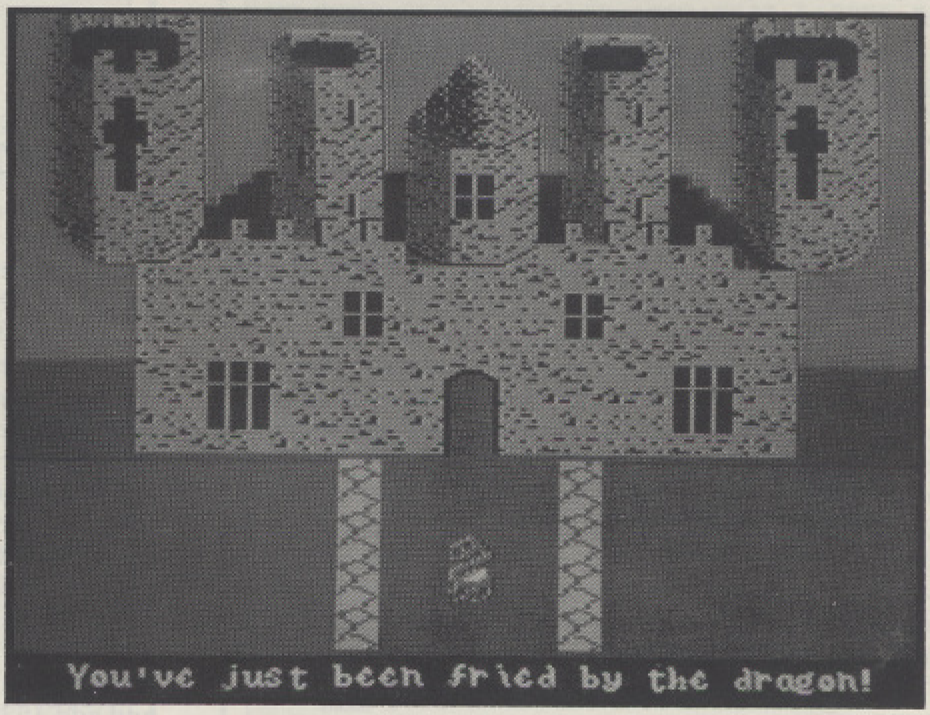
GOT A MATCH?

It turns out that, as in most human endeavours, the things you do to save time actually do save it, except they open up so many new possibilities that you end up with less time than you started with. But then, of course, you can always light the dynamite!

DISK BONUS

OLDE GOLD

A graphic arcade adventure in machine code by Bill Halsall



Slip back in time to days of old when knights were bold and ladies had to be won. In this graphic adventure trilogy your quest is to prove yourself by returning the gold to the mantelpiece then claiming your bride.

Your task will not be easy. Nasty dragons and other beasties will bar your way. The good news is you can reincarnate yourself. The bad news is so can the baddies!

Are you up to it? Can you unravel the puzzles? Can you recover the treasure? What is the secret of the yellow door? Do you really want to get married anyway?

All this and more will be revealed by plugging in a joystick and booting up Side 2 of the issue disk! Playing instructions and cryptic clues are provided on screen. Bon voyage!

This excellent adventure is the BONUS on the Issue 46 disk. Disk subscribers will receive their disk with this Issue but other readers may purchase the Issue disk separately for £2.95. Use the order form on page 54 or write to PAGE 6, P.O. Box 54, Stafford, ST16 1TB. Telephone orders by credit card accepted on 0785 213928

ALTERNATIVE INPUT

John van der Spoel explains how to get keyboard input without stopping your program

Did you type in GUESS AND COUNT from Issue 44? Well I did and it turned out to be a very nice program. My children also enjoyed it, but were arguing a lot, accusing each other of taking too much time to enter their words. This is caused by the program offering the players the possibility to take as much time as they want to enter words. It means you can keep your opponent waiting for hours, while you can do as much thinking as you like.

The cause of the problem is the INPUT statement in Atari Basic which causes the program to stop until input from the keyboard is received. I decided to think about creating an alternative method for the INPUTstatement, which should be able to build in a certain time limit in Guess and Count and similar programs. Although I tried to create such a routine before, I never succeeded. All my attempts failed, always finding that it was was absolutely impossible using INPUT or GET. These statements are just not usable for the aim I had, because they cause the computer to wait for an expression to be entered (INPUT) or a key to be pressed (GET). During this period the computer cannot execute other routines in Basic, for example running a countdown while the players enter words.

There are some Basic programs using a countdown routine, like COMPUTER COUNTDOWN in ATARI USER No. 8 (December 1985) but none of these programs satisfied me, because they are easy to cheat while playing and in fact they do not use the countdown routine while the player enters a word.

After a lot of thinking I finally found a rather simple solution, which anyone can understand and build into their own Basic programs.

THE SOLUTION - ADDRESS 764!

This address holds a number which is the code of the last key pressed. If no key is pressed, the code is 255. This can be easily used in a Basic program - as long as no key is pressed, it is possible to have your program execute a certain task but as soon as a key is pressed, which can be noticed with PEEK(764), this task can be interrupted for a short while.

As far as this goes, it is no news for most Basic programmers although there is a problem to solve if you want to use 764 for detecting specific keys. The code in location 764 is not the ATASCII code, nor the INTERNAL code of the key pressed! It is the keyboardcode, which is used by the keyboard-handler in the internal part of your Atari. Before we go any further check out the table of keyboardcodes shown.

If you want to check the codes for yourself they are easy to find if you type the following line in the direct mode of Basic

```
FOR X=0 TO 10000:PRINT PEEK(764):NEXT X
```

After you press RETURN you will see the keyboard code appear on your screen each time you hit a key.

You will notice two remarkable things - some codes don t exist (e.g. 3, 4 etc.) and there is no way to convert these codes into ATASCII or INTERNAL codes.

SOLVING THE PROBLEM

The second of the above problems is the major one. How to solve this? How can a Basic programmer make use of these codes? There had to be a way and after some thought it turned out there was one!

I got the idea to POKE the INTERNAL codes of each key in a free part of memory. Location 1536 and following (that is page 6) is suitable for this although other locations can be used if the area of memory is protected or the routine could be adapted to place the codes in an array or string. The codes have to inserted in exactly the same order as the 64 codes of the keyboard code table, so address 1536 holds 44 (that is the letter L), address 1537 holds 42 (that is the letter J), and so on. The code of the last letter (A=code 63) is placed in address 1599.

If now you use PEEK(764), take the contents of this address and add 1536 to this, you will find the number of the address where the INTERNAL code of the last key pressed is stored! For example, if you press the letter P, the number 10 is stored in address 764. Add 1536 to 10 and this (1546) is the address where you find the INTERNAL code for the letter P - 48!

HOW TO USE THIS IN A PROGRAM?

Take a look at Listing 1 - the demo program.

A FOR-NEXT loop is checked if a key is pressed by PEEKing location 764. This loop is nested in a countdown loop, so while the countdown runs, the program checks whether a key is pressed or not. If so, the program jumps to a subroutine in line 200, which looks at which key was pressed. After this the INTERNAL code of this key is POKEd directly to the screen-memory, so it is immediately visible on the screen. Once done the program returns to the countdown routine.

All this happens so quickly each time a key is pressed, that you will hardly notice the countdown has stopped for a fraction of a second. The demo program also contains sound routines and a routine to trap faulty keys, such as numbers etc.

The countdown values (in INTERNAL codes) are just as well directly POKEd into the screen-memory, that is address 40000 to 40959 in Graphics 0 (this happens in lines 60 and 80).

```
EI 1 REM ********************************
RV 2 REM *  INPUT & COUNTDOWN ROUTINE  *
LR 3 REM *            by               *
HG 4 REM *     John van der Spoel      *
EC 5 REM * --------------------------- *
DZ 6 REM * NEW ATARI USER  OCTOBER '90 *
EO 7 REM ********************************
NN 8 REM
YP 10 POKE 752,1:? "K":? :? "ENTER 5 LETT
   ERS IN 8 SECONDS !":POKE 40202,128
YY 20 REM  ENTER KEYBOARD-CODES IN PAGE 6
           THIS TAKES 1 SECOND
OS 30 FOR K=1536 TO 1599:READ L:POKE K,L:
   NEXT K
TT 40 REM  COUNTDOWN ROUTINE IN C-LOOP
           INPUT ROUTINE IN I-LOOP
VP 50 POKE 764,255:L=0
OO 60 FOR C=23 TO 16 STEP -1
SQ 70 SOUND 0,50+C*2,10,10
OZ 80 POKE 40101,C
ME 90 SOUND 0,0,0,0
VJ 100 FOR I=1 TO 90
LR 110 IF PEEK(764)<>255 THEN GOSUB 200
VS 120 IF L=5 THEN 300
FX 130 NEXT I
DR 140 NEXT C
MU 150 GOTO 400
RD 200 REM  POKE CHARACTER IN SCREEN-RAM
            AND TEST IF RIGHT KEY IS HIT
NJ 210 IF PEEK(1536+PEEK(764))=0 THEN POS
   ITION 2,8:? "WRONG INPUT !!":POKE 764,
   255:RETURN
ZE 220 SOUND 1,20,10,10
DJ 230 POKE 40202+L,PEEK(1536+PEEK(764)):
   L=L+1:POKE 764,255:SOUND 1,0,0,0:RETUR
   N
SO 300 REM  WELL DONE - MESSAGE
LU 310 POSITION 2,8:? "WELL DONE !!!":POK
   E 752,0:END
ZX 400 REM  TIME IS UP - MESSAGE
RC 410 POSITION 2,8:? "YOUR TIME IS UP !!
   ":POKE 752,0:END
UV 20000 REM  KEYBOARD-CODES WHICH ARE
              USED IN LOCATION 764
XP 20010 DATA 44,42,0,0,0,43,0,0,47,0,48,
   53,0,41,0,0,54,0,35,0,0,34,56,58,0,0,0
   ,0,0,0,0,0,0,0,0,46,0,45,0,0,50,0
SF 20020 DATA 37,57,0,52,55,49,0,0,0,0,0,
   0,0,0,38,40,36,0,0,39,51,33
```

```
EI 1 REM ********************************
BB 2 REM *      MODIFICATIONS FOR      *
UU 3 REM *        GUESS and COUNT      *
IV 4 REM *    by John van der Spoel    *
EC 5 REM * --------------------------- *
DZ 6 REM * NEW ATARI USER  OCTOBER '90 *
EO 7 REM ********************************
NN 8 REM
ZR 400 POSITION 2,19:? "Player ";PL+1;" -
    TURN No.";T;:POSITION 29,19:? "TIME :
   "
GI 440 POSITION 2,21:? "█"
RS 450 GOSUB 2100
SN 460 FOR I=1 TO 5:L=PEEK(40841+I)+32:B$
   (I,I)=CHR$(L):NEXT I
YC 580 Y=Y+2:POSITION 2,21:? " WRONG !!!
            ":GOSUB 60:GOSUB 150:POSITION
   2,21:? ER$:GOTO 400
OY 630 POSITION 2,21:? " NOT FOUND !!! :
   ";:? A$:GOSUB 60:GOSUB 140:GOSUB 60:GO
   SUB 150
UM 1650 GOSUB 2000:GOTO 1330
YI 2000 REM  KEYBOARD CODES
JG 2010 RESTORE 2030
UB 2020 FOR K=1536 TO 1599:READ L:POKE K,
   L:NEXT K
DR 2030 DATA 44,42,0,0,0,43,0,0,47,0,48,5
   3,0,41,0,0,54,0,35,0,0,34,56,58,0,0,0,
   0,0,0,0,0,0,0,0,46,0,45,0,0,50,0
ZN 2040 DATA 37,57,0,52,55,49,0,0,0,0,0,0
   ,0,0,38,40,36,0,0,39,51,33
AP 2050 RETURN
MW 2100 REM  COUNTDOWN & INPUT ROUTINE
FH 2110 POKE 764,255:L=0
NQ 2120 FOR C=24 TO 16 STEP -1:SOUND 0,50
   +C*2,10,10:POKE 40796,C:SOUND 0,0,0,0
HX 2130 FOR I=1 TO 60:IF PEEK(764)<>255 T
   HEN GOSUB 2500
FE 2140 IF L=5 THEN POP :GOTO 460
GX 2150 NEXT I:NEXT C:GOTO 2600
FP 2500 IF PEEK(1536+PEEK(764))=0 THEN PO
   SITION 24,21:? " WRONG KEY !!":POKE 76
   4,255:RETURN
GU 2510 SOUND 1,20,10,10:POKE 40842+L,PEE
   K(1536+PEEK(764)):L=L+1:POKE 764,255:P
   OSITION 24,21:? ER$(1,13);
YD 2520 SOUND 1,0,0,0:RETURN
GE 2600 REM  TIME UP
XJ 2610 POSITION 2,21:? " YOUR TIME IS UP
    !!";:B$=A$:B$(2,5)="****":GOSUB 60:GO
   SUB 140:GOSUB 60:GOTO 470
```

ADDING THIS ROUTINE TO GUESS AND COUNT

With this routine built in, Guess and Count is much more challenging. Take a look at Listing 2 for the changes to be made.

You will notice it is not possible to use the backspace key. This will force you to avoid mistakes, which increases the joy of the game.

I also changed line 630, which now will give you the correct word if you did not succeed to guess it within 5 turns.

I hope other readers will be pleased with this information and will be able to incorporate the routine into their own programs and make more challenging games available for us all.

John van der Spoel

KEYBOARD CODES IN LOCATION 764

0 = L	16 = V	33 = SPACE	49 =
1 = J	17 =	34 = .	50 = 0
2 = ;	18 = C	35 = N	51 = 7
3 =	19 =	36 =	52 =
4 =	20 =	37 = M	53 = 8
5 = K	21 = B	38 = /	54 = <
6 = +	22 = X	39 = INV	55 = >
7 = *	23 = Z	40 = R	56 = F
8 = O	24 = 4	41 =	57 = H
9 =	25 =	42 = E	58 = D
10 = P	26 = 3	43 = Y	59 =
11 = U	27 = 6	44 = TAB	60 = CAPS
12 = RET	28 = ESC	45 = T	61 = G
13 = I	29 = 5	46 = W	62 = S
14 = -	30 = 2	47 = Q	63 = A
15 = =	31 = 1	48 = 9	64 =

OPTICAL EFFECTS

```
EX 1 REM ##################################
IE 2 REM #      THE ALLEN DEMOS - 1       #
SJ 3 REM #    (requires TURBO BASIC)      #
HB 4 REM # ------------------------------ #
KZ 5 REM # NEW ATARI USER OCTOBER '90 #
FC 6 REM ##################################
NM 7 REM
VL 8 REM SAVE AS DEMO1
NO 9 REM
OP 10 GRAPHICS 24:POKF 710,6:POKE 709,0:P
   OKE 712,112
UE 20 L=40:L1=10:L2=20:L3=30:L5=9:G=8
GV 30 FOR Y1=15 TO 135 STEP L
TO 40   FOR Z=17 TO 257 STEP L
BX 50     IF G=4 THEN EXEC SLINES
MY 60     EXEC LINES
HS 70   NEXT Z
SS 80 NEXT Y1:PAUSE 60
DW 90 FOR Y1=135 TO 15 STEP -L
CP 100   FOR Z=257 TO 17 STEP -L
QZ 110     IF NOT G=8 THEN EXEC BOX
HV 120   NEXT Z
RS 130 NEXT Y1:REM PAUSE 100
PR 140 FOR Y1=15 TO 135 STEP L
DI 150   FOR Z=17 TO 257 STEP L
HG 160     EXEC SLINES
IF 170   NEXT Z
NZ 180 NEXT Y1:PAUSE 50
AY 190 G=G-4:IF NOT G<4 THEN GOTO 30
UG 210 PAUSE 400:RUN "D:DEMO2"
SV 220 PROC LINES
SZ 230   FOR X=0 TO L STEP G
WL 240     COLOR 1:PLOT Z+X,Y1:DRAWTO Z+L
   ,Y1+L-X:PLOT Z,Y1+X:DRAWTO Z+L-X,L+Y1
HE 250   NEXT X
VW 260 ENDPROC
VI 270 PROC BOX
BC 280   FOR Z1=0 TO L2
FJ 290     COLOR 0:PLOT Z1+Z+L1,Y1+L1:DRA
   WTO Z1+Z+L1,L3+Y1
GG 300   NEXT Z1
VN 310 ENDPROC
NJ 320 PROC SLINES
HZ 330   FOR SB=3 TO L2 STEP G
HL 340     COLOR 1:PLOT Z+L1+SB,L1+Y1:DRA
   WTO Z+L1,Y1+SB+L1
PH 350     PLOT Z+L5+SB,L3+Y1:DRAWTO Z+L3
   ,Y1+L5+SB
LZ 360   NEXT SB
VZ 370 ENDPROC
ZI 380 REM D:P1
SN 390 REM Program by D.P.Allen**
PO 400 REM final design is not**
XL 410 REM original**
```

Three short demos in Turbo Basic

by D. P. Allen

Here are three nice graphics demos for you to enjoy. If you have a copy of Turbo Basic, boot it up and type in each of the listings. The first program can be saved with any name but the second two listings should be saved as DEMO2 and DEMO3 respectively since each program runs the other. Alternatively you can change the filenames after the RUN command in each program.

Nothing more to be said really, just sit back and enjoy!

```
EX 1 REM ##################################
JJ 2 REM #      THE ALLEN DEMOS - 2       #
SJ 3 REM #    (requires TURBO BASIC)      #
HB 4 REM # ------------------------------ #
KZ 5 REM # NEW ATARI USER OCTOBER '90 #
FC 6 REM ##################################
NM 7 REM
WE 8 REM SAVE AS DEMO2
NO 9 REM
UH 10 M1=30:M2=M1*2:M3=M1*3:M4=M1*4
SN 20 GRAPHICS 24:POKE 709,138:POKE 712,1
   28:POKE 710,128:COLOR 1:P=0:ST=3
HY 30 ------------------------------
TQ 40 FOR Y=0 TO 120 STEP M2
MV 50   FOR X=10 TO 250 STEP M2
GP 60     FOR Z=0 TO 15 STEP ST
GH 70       EXEC DRAW
LL 80     NEXT Z:NEXT X:NEXT Y
KS 90 PAUSE 200:RUN "D:DEMO3"
II 92 ------------------------------
DR 100 PROC DRAW
RW 110   PLOT X+P,Y+M1:DRAWTO X+Z,Y+Z:DRA
   WTO X+M1,Y+P
RM 120   DRAWTO X+M2-Z,Y+Z:DRAWTO X+M2,Y+
   M1
CI 130   DRAWTO X+M2-Z,Y+M2-Z:DRAWTO X+M1
   ,Y+M2
IN 140   DRAWTO X+P+Z,Y+M2-Z:DRAWTO X+P,Y
   +M1
VT 150 ENDPROC
ZO 160 REM D:P2
```

```
EX 1 REM ##########################################
JJ 2 REM #      THE ALLEN DEMOS - 2        #
SJ 3 REM #    (requires TURBO BASIC)       #
HB 4 REM # ------------------------------- #
KZ 5 REM # NEW ATARI USER OCTOBER '90 #
FC 6 REM ##########################################
NM 7 REM
WX 8 REM SAVE.AS DEMO3
NO 9 REM
OY 10 GOTO 550
AH 20 REM setup graphic mode,attract,memo
   ry pointers to screen lines,colours &
   variables
GI 30 GRAPHICS 10:POKE 77,254
YE 40 MEM=DPEEK(743):LEM=DPEEK(743)+8000
MK 50 TT=DPEEK(88):T2=TT+40:TL=TT+3800
ZZ 60 LT=TT+3840:L2=LT+40:LL=LT+3800
SX 70 FOR X=0 TO 7:POKE 705+X,X+G:NEXT X
LH 80 POKE 704,2:PX=40:PY=96:S=1:Q=9:ST=-
   0.2:G=3
IE 90 -------------------------------
VZ 100 REM draw design
AR 110 FOR PX=10 TO 70 STEP 19
BA 120   FOR PY=40 TO 150 STEP 55
OW 130     EXEC DIA
WG 140   NEXT PY:NEXT PX
AT 150 FOR PX=20 TO 60 STEP 19
IG 160   FOR PY=67 TO 125 STEP 55
PE 170     EXEC DIA
WO 180   NEXT PY:NEXT PX
PG 190 ------------------------------
JC 200 REM shift colours through register
    s & scroll two halves of screen
SY 210 # KOO:FOR D=0 TO 150:EXEC KOL
PR 220 NEXT D:G=G+RAND(15):IF G>238 THEN
    G=RAND(9)+6
EZ 230 FOR X=0 TO 7:POKE 705+X,X+G:NEXT X
KQ 240 EXEC SCROLL
BK 250 GO# KOO
PB 260 ------------------------------
WQ 270 REM draw concentric diamond shape
JA 280 PROC DIA
IK 290   FOR T=Q TO S STEP ST:COLOR T
AS 300     TRAP 320:PLOT PX-(S-T),PY:DRAW
    TO PX,PY-4*(S-T)
CL 310     TRAP 320:DRAWTO PX+(S-T),PY:DR
    AWTO PX,PY+4*(S-T):DRAWTO PX-(S-T),PY
FD 320   NEXT T
VR 330 ENDPROC
OY 340 ------------------------------
GM 350 REM shift colours through register
    s
TF 360 PROC KOL
MT 370   FOR X=0 TO 7
KV 380     POKE 713-X,PEEK(712-X)
OK 390     POKE 705,PEEK(713)
GW 400   NEXT X
VO 410 ENDPROC
OV 420 ------------------------------
GP 430 REM scroll 6 lines up & down
OD 440 PROC SCROLL
US 450   DO
OW 460     MOVE TT,MEM,40:MOVE T2,TT,3820
FO 470     MOVE MEM,TL,40
YM 480     -MOVE LL,LEM,40
VY 490     -MOVE LT,L2,3940
DN 500     -MOVE LEM,LT,40
LQ 510     N=N+1:IF N=6 THEN EXIT
CU 520   LOOP
AR 530   N=0:ENDPROC
PA 540 ------------------------------
QX 550 GRAPHICS 0:POKE 752,1:POKE 710,0:P
   OKE 709,15:DIM A$(1)
US 552 FOR W=1 TO 32:READ A$
CG 560   POSITION 2+W,10:? A$:NEXT W:PAUS
   E 20
ZF 562 FOR TM=15 TO 0 STEP -1:POKE 709,TM
   :PAUSE 3:NEXT TM
RZ 570 DATA P,l,e,a,s,e, ,W,a,i,t, ,W,h,i
   ,l,e, ,D,r,a,w,i,n,g, ,D,e,s,i,g,n
QG 580 GOTO 20
WI 590 REM ***'Atariglo'****
MK 600 REM *program devised*
FA 610 REM **by D.P.Allen***
```

Ian Finlayson's

TUTORIAL SUBROUTINES

LINE COUNT

A UTILITY FOR CHECKING YOUR PROGRAMS

I had temporarily run out of ideas for the tutorial subroutine article, and had decided to more or less evade the issue and tell you a story instead. The story was to be designed, like the tutorial articles, to teach something as well as to be enjoyable in its own right, but then I received an interesting letter from Mr P Adams of Billesley containing a short, but quite complex subroutine. I apologise to him for bashing his idea about a bit to create this article.

The articles for the October/November magazine are written in July and it is hot summer weather which tends to reduce time spent on the computer, in fact it reduces my whole thinking processes to a tropically slow pace so I am particularly grateful to Mr Adams for supplying the idea.

BASIC LINE STRUCTURE

To understand what is gong on in the subroutine itself it is necessary to know a little about the structure of a tokenised line of Basic. Once a line of Basic has been typed into the computer it is stored in the computer's memory in "tokenised" form, that means that the line numbers, Basic commands and so on are all changed into individual bytes in memory. The structure of all lines is the same:

Bytes 1 and 2 are the line number in low byte, high byte format - linenumber=(byte1+256*byte2).

Byte 3 is the offset from the memory location of byte 1 to the memory location of the start of the next line of Basic.

Byte 4 is the offset from the memory location of byte 1 to the start of the next Basic statement. If there are several statements on one line the next Basic statement starts after the first colon. If there is only one statement on the line the next Basic statement starts on the next line and this offset value is the same as the line offset value.

After these four bytes the program tokens start - there is a token for each Basic command and several others with special purposes that I will not go into here. If you wish to find out more there is a good description in the book De Re Atari. It is enough for this subroutine to know that the first byte after each colon (that is the first byte of each Basic statement) is like byte 4 and contains the offset value between the start of the current line and the start of the next Basic statement.

AN OVERVIEW OF THE SUBROUTINE

What does the subroutine do? It counts all the line numbers in a Basic program and all the Basic statements on each line, and prints on the screen as it goes the sequential number, the Basic line number and the number of Basic statements on the line. When the screen is full it pauses until a key is pressed. When used as a programmers tool this is a more convenient way of looking at your program line numbers than using the full LIST command.

THE DETAILS

Line 30000 - I have started at line number 30000 so as to be above most programs without clashing with the line numbering of the Typo checksum program which you use to check that all the lines you type in are correct. This line initialises the variable LINE to zero. LINE will be used to count the number of lines in the program being checked.

Line 30010 finds the address in memory of the start of the Basic statement table (STB). This address is stored in low byte, high byte format in memory locations 136 and 137.

Line 30020 is the start of the outer loop of the subroutine. It increments LINE by one on each pass through the loop, thus counting the number of lines in the program. The outer loop handles the part of the program which deals sequentially with lines of the program being analysed, while the inner loop deals with the individual Basic statements within each line.

Line 30030 - The first action is to find the line number, NUM, from the first two bytes of the line. We do not want to include the lines of this subroutine itself, so if the line number is 30000 (the first line of the subroutine) the loop is exited by going to 30140, thus all line numbers above 30000 will be ignored.

Line 30040 - First OFF is set equal to three, ready to start the inner loop. This is the offset from the start of the line to the first Basic statement in the line. The counter for the number of statements in the line, STMT is set to zero.

Line 30050 is the first line of the inner loop. STMT is incremented by one for each pass through the loop to count the number of statements in the line.

Line 30060 - FIRSTBYTE is the address of the start of the Basic statement (OFFset from the start of line address, STB).

Line 30070 - looks into FIRSTBYTE to find the offset to the start of the next Basic statement and changes OFF to this new value for use during the next pass through the inner loop.

```
XN 29991 REM ***************************
UU 29992 REM *  TUTORIAL SUBROUTINES   *
PD 29993 REM *-------------------------*
EU 29994 REM *   BASIC LINE ANALYSIS   *
MB 29995 REM *           by            *
RX 29996 REM *     Ian Finlayson       *
PX 29997 REM *-------------------------*
NT 29998 REM * NEW ATARI USER - OCT 90 *
MZ 29999 REM ***************************
   *****
XQ 30000 LINE=0
BY 30010 STB=PEEK(136)+PEEK(137)*256
FR 30020 LINE=LINE+1
QO 30030 NUM=PEEK(STB)+PEEK(STB+1)*256:IF
    NUM=30000 THEN 30140
OQ 30040 OFF=3:STMT=0
HR 30050 STMT=STMT+1
VN 30060 FIRSTBYTE=STB+OFF
LI 30070 OFF=PEEK(FIRSTBYTE)
DW 30080 IF OFF=PEEK(STB+2) THEN 30100
AN 30090 GOTO 30050
BJ 30100 ? "LINE ";LINE;" IS # ";NUM;" -
   BASIC STMNTS ";STMT
FR 30110 IF (LINE/22)=INT(LINE/22) THEN G
   OSUB 30160
GF 30120 STB=STB+PEEK(STB+2)
XZ 30130 GOTO 30020
LT 30140 ? :? "TOTAL LINES ";LINE-1
YF 30150 END
AL 30160 OPEN #1,4,0,"K:":? "HIT ANY KEY
   FOR MORE":GET #1,KEY:CLOSE #1:RETURN
```

Line 30080 - If the value of OFF is the same as the value stored in STB+2 then the next Basic statement is the first of the next line. This means that the last statement of the current line has been reached, so the program must exit the inner loop and go back to the outer loop at line 30100.
Line 30090 is the line that completes the inner loop and jumps back to 30050.
Line 30100 - For each line in the program which is being analysed this line writes to the screen the line count, the Basic line number and the number of Basic statements in the line. If you want a hard copy of this information and have a printer connected, just change the ? to LP. (or LPRINT).
Line 30110 is inserted here to stop the printing process described in 30100 when the screen is full. Otherwise the information will pass down the screen too fast to be followed and can only be stopped with [CONTROL]-1. This line causes a pause every time the line number is a multiple of 22, and then waits for a keypress (in the subroutine at line 30160) before continuing.
Line 30120 sets STB to the new value for the beginning of the next line of Basic (offset from the previous one by the value in the third byte).
Line 30130 is the end of the outer loop and goes back to 30020.
Line 30140 is only reached when the program jumps out of the outer loop in line 30030. It just prints the total number of lines in the program. If you change the "?" to "LP." here as in line 30100 above, remember that inverse characters can cause problems on a printer - on mine they come out as italic.
Finally the END statement separates the main program from the keypress subroutine which regular readers will recognise - I use it a lot!

USING THE SUBROUTINE

To use this subroutine just LIST it to cassette or disk. Load up the program you wish to analyze and then ENTER this subroutine. Now type GOTO 30000 [RETURN] and the subroutine will run. If you want to just give it a try before going to the lengths of analysing a program, you can type in a few "dummy" lines such as:

```
10 ?:?:?:?
20 ?:?:REM etc
```

...then GOTO 30000.

WHAT ABOUT THAT STORY?

Well, the story I was going to write was about my first experiments with a modem and telecommunication. It is an area of computing that intrigues many people, but it seems to be particularly full of jargon, so I thought that my experiences might be of interest and help to others. The saga is not yet complete, however, as the "incredibly good value" modem I bought second hand is still in the hands of Pace Micro Technology awaiting expensive repairs, so I will save the tale for the next edition!

In the meantime if you have problems with any of the subroutine articles, or with other Basic programs write with a stamped self addressed envelope and I will try to help. I cannot help with assembler or machine code, and I will probably not reply if you don't supply the return postage ... for the rest of you my address is

Ian Finlayson, 60 Roundstone Crescent, East Preston, West Sussex, BN16 1DQ

INFOCOM

R.I.P.

1980 - 1990

In 1983, while I was recuperating from an operation, a friend lent me his Atari and a game called Zork I by Infocom. He wanted me to try and map the maze for him!

I loaded it up and was greeted by those immortal words:

"West of House.
You are standing in an open field west of a white house, with a boarded front door. There is a small mailbox here."

I soon found the elvish sword, the battery-powered brass lantern and the trap door; killed the troll; and entered the Maze:

"This is part of a maze of twisty little passages, all alike."

I later learned that Crowther and Woods had designed the first maze in the original Adventure in 1976: "You are in a maze of twisty little passages, all alike" was the original version - they have a lot to answer for!

Infocom's maze was slightly more difficult as the Thief wanders around picking up some of the items you use to mark the rooms! This sort of innovation was to be Infocom's hallmark over the years.

I eventually finished Zork I and was delighted to discover from the ad built into the end of the game that there was a Zork II - I was hooked. I have now completed 32 of Infocom's Interactive Novels (they are far too good to be just called Text Adventures) and sadly, once I have done the last three which are waiting on my shelf, that will be the END! For, alas, Infocom no longer exists!

In 1986 Activision (now Mediagenic) bought Infocom, but never managed to make any profit out of it, despite introducing graphics (Zork Zero, Shogun, Arthur) and mouse driven adventures (Journey), and putting the Infocom logo on RPGs written by other software houses (BattleTech and Quarterstaff). In 1989 Mediagenic moved Infocom from Massachusetts to California, taking with them only a token staff. None of the original founders nor any of the subsequent big-name writers went with them. That was effectively the end of Infocom as we knew and loved it.



Now Mediagenic have formally written off Infocom for a paltry $9 million! Mediagenic still own the name so it will appear on future products such as the imminent Circuit's Edge, but even the logo has been changed - the real Infocom is gone forever!

I think Steve Meretzky, the really weird one - who brought us gems like The Hitchhiker's Guide to the Galaxy, The Leather Goddesses of Phobos and the he Leather Goddesses of Phobos and the unforgettable robot, Floyd, in Planetfall and Stationfall, knew it was the end when he wrote Zork Zero. It is a little disjointed in places where he throws in lots of traditional puzzles as though he just wants to squeeze them all in before the end, and it comes full circle - rounding everything off nicely by ending with the creation of that White House which started it all off.

What went wrong? I don't know - Zork I is reputed to have sold a million copies and has been referred to as the world's best-selling entertainment software product (N.B. This was a few years ago - these days a new Nintendo Mario Bros can shift 7 million cartridges!); Infocom have always been hailed as the absolute best in the world of text adventures; in the mid-eighties they were producing an average of five new games a year, including the amazing Hitchhiker's Guide to the Galaxy.

Didn't we buy enough of them? Was there too much competition from newcomers like Magnetic Scrolls? Had they done everything that was worth doing in that style of game? I don't suppose we will ever know!

Still, it was good while it lasted, and I suspect most of you have rather more to look forward to than I have as you probably haven't played them all yet! But, don't wait too long, stocks won't last forever and they may never be reprinted now.



Infocom always excelled at their packaging - early games came in the most amazing boxes - Deadline was just like a police file, Suspended was enormous as it contained a full size mask of a face staring out at you (the eyes followed you around the shop until you broke down and bought it!), and Starcross came in a flying saucer shaped box! Sadly these are all now repackaged to the standard book size, but the contents are still as good as ever, with maps, newspapers, matchboxes, balloons, peril-sensitive sunglasses, scratch n sniff pads, to name but a few!

A full list of Infocom s adventures is given in the box. (Plus four sets of three, packaged at bargain prices: The Zork Trilogy, The Enchanter Trilogy, The SF Classics, and the Classic Mystery Library - get them if you can!)

There were four Infocom books published by Puffin in 1983, in the Endless Quest/Fighting Fantasy style:

Zork 1: The Forces of Krill
Zork 2: The Malifestro Quest
Zork 3: The Cavern of Doom
Zork 4: The Conquest of Quendor

all by Steve Meretzky, but I doubt if they are still available.

Infocom also published (not listed) the two BattleTech games by Westwood Associates (ST only), a graphics strategy game called FOOBLITZKY (XL only) and a relational database system called Cornerstone (neither of which appear to have been very successful), plus a range of Infocomics - computerised comic books produced in conjunction with Tom Synder Productions (I have ZorkQuest, Lane Mastodon and Gamma Force for the IBM - they never came out on any Atari).

And of course the Invisiclues - for another £10 you can buy clues and maps to help you solve the more tortuous problems! Not so easy to get on this side of the Atlantic was the Infocom magazine New Zork Times (later Status Line) - free with any game in the

continued on page 30

THE COMPLETE INFOCOM DISKOGRAPHY

Title	Code	Year	Level	XL	ST	Author
FANTASY						
Wishbringer	Z0	85	I	Y	Y	BM
Zork I	Z1	80	S	Y	Y	MB+DL+
Zork II	Z2	81	A	Y	Y	MB+DL+
Zork III	Z3	82	A	Y	Y	MB+DL
Enchanter	Z4	83	S	Y	Y	MB+DL
Sorceror	Z5	84	A	Y	Y	SM
Spellbreaker	Z6	85	E	Y	Y	DL
Trinity	Z7	86	S	N	Y	BM
Beyond Zork	Z8	87		N	Y	BM
ZorkZero	Z9	89		N	N	SM
SCIENCE FICTION						
Starcross	S1	82	E	Y	Y	DL
Suspended	S2	83	E	Y	Y	MSB
Planetfall	S3	83	S	Y	Y	SM
H H G to the Galaxy	S4	84	S	Y	Y	SM+DA
A Mind Forever Voyaging	S5	85	A	N	Y	SM
Stationfall	S6	87		Y	Y	SM
TALES OF ADVENTURE						
Infidel	A1	83	A	Y	Y	MSB
Seastalker	K1	84	I	Y	Y	SG+JL
Cutthroats	A3	84	S	Y	Y	MSB+JW
Hollywood Hijinx	A4	86	S	Y	Y	HDA
Shogun	A5	89		N	N	DL+JC
MYSTERY						
Deadline	M1	82	E	Y	Y	MB
Witness	M2	83	S	Y	Y	SG
Suspect	M3	84	A	Y	Y	DL
Ballyhoo	M4	86	S	Y	Y	JO
Moonmist	M5	86	I	Y	Y	SG+JL
COMEDY						
Leather Goddesses	C1	86	S	Y	Y	SM
Bureaucracy	C2	87		N	Y	DA+Fred
Nord & Bert*	C3	87		N	Y	JO
OTHER						
Lurking Horror	H1	87		Y	Y	DL
Plundered Hearts	R1	87		N	Y	AB
Border Zone	E1	88		N	N	MB
Sherlock		88		N	N	BB
Journey	J1	89		N	N	MB
Quarterstaff		89		N	N	SS+KU
Arthur	L1	89		N	N	BB

*** Full title: Nord & Bert Couldn t Make Head or Tail of It**

LEVEL

I - Introductory
S - Standard
A - Advanced
E - Expert

AUTHORS

AB - Amy Briggs
BB - Bob Bates
BM - Brian Moriarty
DA - Douglas Adams
DL - Dave Lebling
Fred - W.E.B. õFredÃ Morgan
HDA - õHollywoodÃ Dave Anderson
JC - James Clavell
JL - Jim Lawrence
JO - Jeff O Neill
JW - Jerry Wolper
KU - Ken Updike
MB - Marc Blank
MSB - Michael S. Berlyn
SG - Stu Galley
SM - Steve Meretzky
SS - Scott Schmitz

INFOCOM continued

States - I never managed to get one at all!

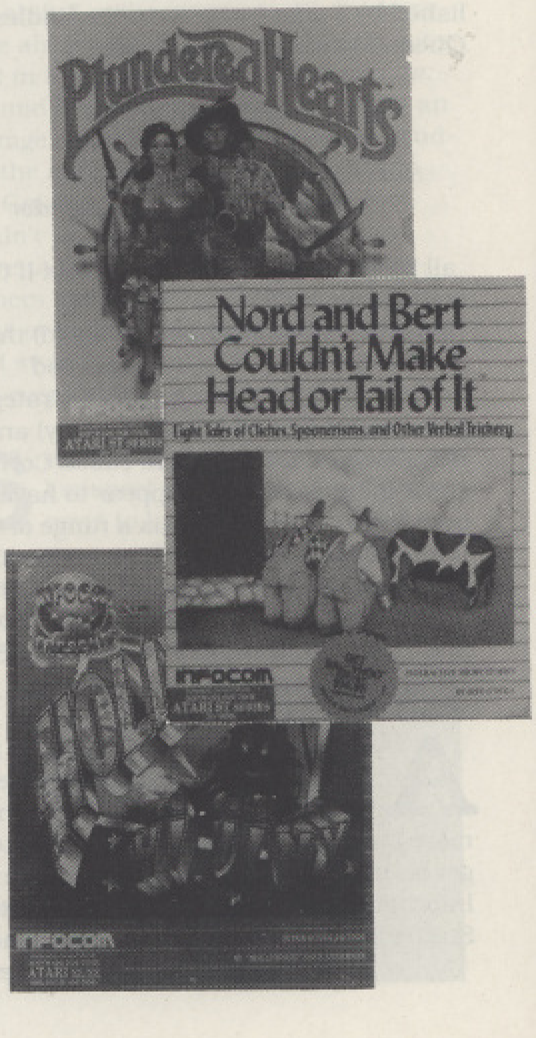
It all began in 1977 at MIT, when Timothy A. Anderson, Marc S. Blank, Bruce K. Daniels, and P. David Lebling created the first mainframe version of Zork to prove that they could do better than Crowther and Woods. The game grew over the years and in 1980 Infocom was set up and Zork rewritten and expanded to form Zork I, II and III. Because the games were all written in ZIL (Zork Implementation Language) and only used text (no fancy graphics or sounds to worry about) the games were easily portable to other machines simply by producing a new version of ZIL for each machine. Infocom adventures soon became available on virtually every American Micro which had a diskette drive and enough memory.

As the company grew they expanded from pure Fantasy into Murder Mysteries, Science Fiction, and straight Tales of Adventure, enhancing the basic system all the time to make the games more and more realistic both in their gameplay and also in the richness of their descriptions, atmosphere and humour. They started grading the games according to difficulty - but this was obviously not a good idea as it was dropped only a year later (Hollywood Hijinx was the last to be coded - the box in the adverts said Standard, but the actual game box did not!).

A Mind Forever Voyaging, in 1985, was the first disappointment for the 8-bit Atari user - Infocom had finally decided to start taking advantage of enhancements in technology and it needed 128K. Trinity and Bureaucracy went the same way, and Stationfall in 1987 was the last 8-bit Infocom game. The ST was well supported initially, with all the existing games being converted to it as soon as it appeared; but 1988 was the end of the road for it too. With the Americans not perceiving the ST as a big enough market, the last we got was an extremely late Beyond Zork. Now, the chance of any Atari owner ever being able to play Zork Zero is, I am afraid, zero!

Thanks Dave, Marc, Timothy, Bruce, Brian, Steve, Michael, Stu, and all the rest, and all the people behind the scenes at Infocom as well.

It was the best.



THE LISTING FORMATTER

P. Abbot's utility will help you understand and analyse program listings

I wrote the original list formatter over 3 years ago, it was written to take a BASIC program typed in from a magazine or one of my own, and produce a formatted listing of it - a listing which would be easy to understand. The ultimate aim was to obtain enough information about a program to be able modify it.

I recently had cause to use the program again and it was at this time that I decided to tidy the program up, restructure it (to be easily modified at a later date) and speed it up, the original was very slow!

The program performs a number of tasks:

- It right justifies each line number and makes sure that only line number are in the first 5 columns.
- All multi-statement lines are broken up so that each statement occupies a single line.
- The statements which follow the THEN in a IF-THEN structure are placed on subsequent lines, indented by 3 columns. If the THEN is only followed by a number then a GOTO is inserted before the number.
- The contents of a FOR-NEXT loop are also indented by 3 columns for clarity.
- All operators are padded out with a single space before and after them.
- All control characters, in string constants, are replaced by a default character, CHR$(126) (printed as " " by non-Atari printers) and all inverse characters are converted to their normal form.

The last two actions are optional. Changing the variable PAD in line 550 to FALSE will prevent operator padding from being performed. Changing USEDEF in line 540 to FALSE will prevent the replacement of control characters (if the output is to be sent to an Atari printer, this should be set to FALSE). The number of columns by which each line is indented is determined by the variable INDENT. INDENT is defined in line 580 and can be changed to any value from 0 (for no indenting) to a value less than the maximum width of the output lines.

Note: the formatter produces a slightly confusing output with the following type of input:

```
1040 FOR A=1 TO 100:IF A<S THEN S=S+Q:NEXT
A:GOTO 2900
```

The formatter will produce:

```
1040 FOR A = 1 TO 100
        IF A < S THEN
              S = S + Q
        NEXT A
        GOTO 2900
```

but how else could you format such a terrible program structure!

ENTERING THE PROGRAM

When typing the program in all REMs can be omitted to reduce the size of the program. The program is only written to handle Atari BASIC, but it could be extended to handle Turbo BASIC. The only major problem would be with handling the IF-ELSE-ENDIF structure, which would have to be treated in the same manner as a loop. This would be different from the way the formatter currently handles IF-THEN structures. If the formatter is to be run on an Atari 400 or 800 then the address (735) in line 750 should be changed to 30.

THE PROGRAM'S USE

The formatter can run on any Atari 8 bit computer (400-130XE) with Atari BASIC. If you wish to get a hard copy of the formatted program you will need a printer, either an Atari or a non-Atari printer will do.

To format a program first load the program you wish to format into the computer, then LIST it out to either a disk file or a cassette

e.g. LIST "D:PROG.LST"
or LIST "C:"

If you are using Turbo BASIC to list the program, first switch off Turbo BASIC's automatic line indentation, by typing "*L-".

Once a listing of the program has been generated, then the formatter should be loaded and run. The first prompt is for the file name/device to which the program to be formatted has been saved. The response should be of the form:

D:PROG.LST
(if no device is specified then "D:" is presumed)

At the second prompt the destination should be entered in a similar manner

P: (don't use P1: or P2:)
or D2:PROG.FMT
or C:

If you are loading a listing from cassette then you can't save the formatted listing back to cassette. This is because the formatter does not buffer either its input or its output.

The commonest output device will be the printer, to get a permanent copy of the formatted program. For this reason the third prompt, "Line length", has a default of 80. If you wish to accept this default then simply press RETURN, but any value could be entered in the normal manner.

The speed of the program's operation is partially determined by the I/O device being used, cassettes are slower than disks. I have used the formatter to format a listing of itself (with REMs) in just over 5 minutes (just over 2 minutes with Turbo BASIC). This is taking the input from a disk and the output going to the screen. The declaration of variables is performed in a subroutine at the end of the program, the reason for this is speed. Originally the declaration code was at the beginning of the program but after moving it into a subroutine at the end of the program, I noticed a halving in the execution time.

```
EI 1 REM ******************************
BA 2 REM *      PROGRAM FORMATTER     *
LR 3 REM *              by            *
EC 4 REM *          P. Abbot          *
EC 5 REM * -------------------------- *
DZ 6 REM * NEW ATARI USER  OCTOBER '90 *
EO 7 REM ******************************
NN 8 REM
SG 10 GOSUB 470
BA 11 REM
VC 12 REM MAIN LOOP
BE 13 REM
JX 20 INPUT #INST,LINE$:L=LEN(LINE$):P=N1
   :LINE$(L+N1)="       "
FL 30 P=P+N1:IF LINE$(P,P)<>" " THEN 30
IZ 40 TEMP=P:P=P+N1:IF TEMP<N6 THEN PRINT
    #OUTST;SPACE$(TEMP,N5);
GT 50 IF LINE$(P,P+N3)="NEXT" AND FNI>N0
   THEN FNI=FNI-N1:INL=INL-INDENT:WIDTH=W
   IDTH+INDENT
KW 60 PRINT #OUTST;LINE$(N1,TEMP);:LP=P:N
   OPAD=N0:IF FNI>N0 THEN PRINT #OUTST;SP
   ACE$(N1,INL);
YW 70 IF LINE$(P,P+N3)<>"REM " THEN 120
RN 80 TEMP=P
CG 90 IF P-LP+NOPAD<WIDTH AND P<=L THEN P
   =P+N1:GOTO 90
GO 100 IF P<=L THEN PRINT #OUTST;LINE$(TE
   MP,P-N1):PRINT #OUTST;SPACE$(N1,N6+INL
   );:LP=P:NOPAD=N0:GOTO 80
AR 110 PRINT #OUTST;LINE$(TEMP,P):GOTO 20
IQ 120 IF P-LP+NOPAD>=WIDTH THEN PRINT #O
   UTST:LP=P:NOPAD=N0:PRINT #OUTST;SPACE$
   (N1,N6+INL);
OG 130 IF LINE$(P,P)<>QUOTE$ THEN 230
CN 140 TEMP=P:IF  NOT USEDEF THEN 170
MB 150 IF LINE$(P+N1,P+N1)>="█" THEN LINE
   $(P+N1,P+N1)=CHR$(ASC(LINE$(P+N1,P+N1)
   )-128)
AT 160 IF LINE$(P+N1,P+N1)<" " OR LINE$(P
   +N1,P+N1)>"|" THEN LINE$(P+N1,P+N1)=DE
   FCHR$
RX 170 P=P+N1:IF P<L AND LINE$(P,P)<>QUOT
   E$ AND (P-LP+NOPAD)<WIDTH THEN ON USED
   EF+N1 GOTO 170,150
VB 180 IF LINE$(P,P)=QUOTE$ AND P-LP+NOPA
   D<WIDTH THEN 220
TA 190 PRINT #OUTST;LINE$(TEMP,P-N1):LP=P
   :NOPAD=N0
CE 200 IF LINE$(P-N1,P-N1)<>QUOTE$ THEN P
   RINT #OUTST;SPACE$(N1,N6+INL);:TEMP=P:
   ON USEDEF+N1 GOTO 170,150
UQ 210 P=P+N1:GOTO 230
PB 220 PRINT #OUTST;LINE$(TEMP,P);:P=P+N1
CS 230 IF LINE$(P,P)<>":" THEN 270
OZ 240 IF LINE$(P+N1,P+N5)="NEXT " AND FN
   I>0 THEN FNI=FNI-N1:INL=INL-INDENT:WID
   TH=WIDTH+INDENT
UC 250 PRINT #OUTST:PRINT #OUTST;SPACE$(N
   1,N6+INL);:P=P+N1:NOPAD=N0:LP=P:IF FLA
   G THEN WIDTH=WIDTH-INDENT:FLAG=FALSE
RX 260 GOTO 70
BR 270 IF LINE$(P,P+N3)="FOR " THEN FNI=F
   NI+N1:INL=INL+INDENT:FLAG=TRUE
SG 280 IF LINE$(P,P+N4)="NEXT " AND FNI>N
   0 THEN FNI=FNI-N1:INL=INL-INDENT:FLAG=
   TRUE
ZM 290 IF P<N4 THEN 340
ID 300 IF LINE$(P-N3,P+N1)<>"THEN " THEN
   340
FU 310 INL=INL+INDENT:PRINT #OUTST;"N":P=
   P+N2:NOPAD=N0:LP=P:WIDTH=WIDTH-INDENT:
   PRINT #OUTST;SPACE$(N1,N6+INL);
VM 320 IF LINE$(P,P)>="0" AND LINE$(P,P)<
   ="9" THEN PRINT #OUTST;"GOTO ";
NZ 330 GOTO 430
IT 340 IF P=L OR LINE$(P,P)>QUEST$ OR  NO
   T PAD THEN 420
RV 350 T$=LINE$(P,P+N1):IF T$="<>" OR T$=
   "<=" OR T$=">=" THEN P=P+N1:GOTO 380
MV 360 T$(N2)="":IF T$="+" OR T$="*" OR T
   $="/" OR T$="=" OR T$="<" OR T$=">" TH
   EN 380
FD 370 IF T$<>"-" OR LINE$(P-N1,P-N1)="="
    THEN 420
IB 380 IF P-LP+NOPAD+N2<WIDTH THEN PRINT
   #OUTST;" ";T$;" ";:P=P+N1:NOPAD=NOPAD+
   N2:GOTO 430
OO 390 NAME$=" ":NAME$(N2)=T$:NAME$(LEN(T
   $)+N2)=" ":TEMP=WIDTH-(P-LP+NOPAD):PRI
   NT #OUTST;NAME$(N1,TEMP):NOPAD=N0:P=P+
   N1
BK 400 LP=P:PRINT #OUTST;SPACE$(N1,N6+INL
   );NAME$(TEMP+N1);:IF TEMP+N1<=LEN(NAME
   $) THEN NOPAD=N1
NW 410 GOTO 430
TJ 420 PRINT #OUTST;LINE$(P,P);:P=P+N1
ZW 430 IF P<=L THEN 120
KK 440 PRINT #OUTST
FR 450 INL=FNI*INDENT:WIDTH=DWIDTH-INL:FL
   AG=FALSE
QB 460 GOTO 20
RE 461 REM
AJ 462 REM INITIALISE PROGRAM
RK 463 REM
PZ 470 TRAP 780
RG 471 REM
QB 472 REM CONSTANTS
RM 473 REM
KU 480 N0=0:N1=1:N2=2:N3=3:N4=4:N5=5:N6=6
IJ 490 DIM SPACE$(20):SPACE$="
          "
BA 500 DIM QUOTE$(N1):QUOTE$=CHR$(34)
DH 510 DIM QUEST$(N1):QUEST$="?"
TB 520 DIM DEFCHR$(N1):DEFCHR$=CHR$(126)
UL 530 TRUE=N1:FALSE=N0
DX 540 USEDEF=TRUE:REM USE DEFAULT CHAR?
GU 550 PAD=TRUE:REM PAD OUT OPERATORS?
PN 560 INST=N1:REM INPUT STREAM
WA 570 OUTST=N2:REM OUTPUT STREAM
NS 580 INDENT=N3:REM NO.SPACES TO INDENT
RJ 581 REM
RM 582 REM
AC 590 DIM LINE$(200),NAME$(20),T$(2)
DW 600 P=N0:L=N0:FNI=N0:INL=N0:FLAG=FALSE
   :NOPAD=N0
RK 610 PRINT "↖↓Source file >";:INPUT #16
   ,LINE$:IF LINE$="" THEN 610
MJ 620 NAME$=LINE$:IF LEN(NAME$)=N1 THEN
   NAME$="D:":NAME$(N3)=LINE$
FR 630 IF NAME$(N2,N2)=":" THEN 660
UB 640 IF LEN(NAME$)>=N3 THEN IF NAME$(N3
   ,N3)=":" THEN 660
BF 650 NAME$="D:":NAME$(N3)=LINE$
DI 660 OPEN #INST,N4,N0,NAME$
KA 670 PRINT "↓Destination >";:INPUT #16,
   LINE$:IF LINE$="" THEN 670
MV 680 NAME$=LINE$:IF LEN(NAME$)=N1 THEN
   NAME$="D:":NAME$(N3)=LINE$
CN 690 IF NAME$(N2,N2)=":" THEN 720
NN 700 IF LEN(NAME$)>=N3 THEN IF NAME$(N3
   ,N3)=":" THEN 720
AY 710 NAME$="D:":NAME$(N3)=LINE$
AJ 720 PRINT "↓Line width>80←←";:INPUT #1
   6,LINE$:IF LINE$="" OR LINE$(N1,N1)<"0
   " OR LINE$(N1,N1)>"9" THEN 720
NQ 730 OPEN #OUTST,8,N0,NAME$
XT 740 DWIDTH=VAL(LINE$)-N6
XE 750 IF LINE$="P:" THEN POKE 735,DWIDTH
   +N6
NR 760 WIDTH=DWIDTH
ZR 770 RETURN
RJ 771 REM
RM 772 REM
GM 773 REM ERROR HANDLE
RS 774 REM
GO 780 IF PEEK(195)<>136 THEN PRINT :PRIN
   T "Error ";PEEK(195);" at line ";PEEK(
   186)+PEEK(187)*256
BV 790 CLOSE #INST:CLOSE #OUTST
```

SOUND RECORDING

John S Davison explains how to record top quality sound directly from your XL/XE or ST

As you may be aware, I recently recorded an audio cassette for Page 6 called World of Computer Music Making. The cost of producing this in a professional studio was prohibitive, so like many other music enthusiasts I set up a small recording studio at home and did the whole job there. This meant I had to get involved in all aspects of recording music generated by my Atari 8-bit and ST machines, both from their internal sound chips and via MIDI. Co-incidentally, a number of readers have recently contacted me expressing an interest in this topic, so it now seems appropriate to write an article or two about the lessons I learned. Perhaps it can save you some hassle if you want to record your own music on tape for posterity, or perhaps just to make it more convenient to listen to.

Although the Music Making tape is MIDI oriented it also includes sections on using the XL/XE and ST's internal sound chip. I soon discovered it's not as easy as you'd think to produce decent quality recordings of chip sound. You can't just stick a microphone in front of the TV/monitor's loudspeaker and press the record button. The results are dreadful, owing to the dire quality of the audio systems in most TVs and monitors. Also, the microphone will pick up all sorts of background sounds to further degrade recording quality. For best results you need to inject the chip sound directly into the recorder's line inputs, completely bypassing the TV/monitor audio system.

But how do you get at the audio signal? Well, the XL/XE machines have a 180 degree 5-pin DIN socket to allow the connection of a proper video monitor. One of its pins carries the required audio signal, and you can use it even if you don't have a video monitor. It can be fed directly into a cassette recorder's line input or even to the Aux (auxiliary) input on a hi-fi amplifier. To tap this signal you need to make up a suitable cable to connect that monitor socket to the appropriate amplifier or recorder inputs. I used this method to record my 130XE's sound chip playing "Twelfth Street Rag" on the Music Making cassette, and I must admit it produced highly acceptable results.

The sound output from the monitor socket comes from a single pin and is therefore only single channel (monophonic) sound. Most people want to record onto a stereo cassette recorder of some description and this usually requires two channel input. You can provide it by using a twin cable to split the computer's sound output into two and then feed each part into its own input channel on the recorder. You're unlikely to find such a cable ready-made in the shops, but you can build your own for about £3.

MAKE YOUR OWN CABLE

I'm always in favour of making life easier, so instead of building the cable from scratch you can modify a standard cable, as this saves some of the soldering work. So, go to your local electronic components store and buy a 180 degree 5-pin DIN plug and a hi-fi connection cable that has two phono plugs on one end and two bare wires at the other. If you can't obtain such a cable, get one with two phono plugs at each end instead - possibly the most common hi-fi cable around! Your local Tandy store is probably the best bet for buying these, and should be able to help if you're unsure what you need.

Most hi-fi equipment uses RCA phono plugs for its inputs and outputs, so I'm assuming that's what your cassette recorder and amplifier have. If it uses something different then you'll have to modify these instructions to take your particular requirements into account.

Having obtained the parts, you now have to solder up the appropriate connections. This needs care, as DIN plugs aren't the easiest things to work with. I know many of you have never attempted anything like this before, so here's a step-by-step guide to how it's done.

SAFETY NOTE - don't attempt making this cable yourself unless you know how to safely use a soldering iron. If in doubt get someone with the right level of skill to do the job for you.

STEP 1. Disassemble the DIN plug. It usually consists of four parts: two metal half body shells; a circular insulator holding the five pins; and a plastic cover which pushes onto the back of the plug, holding everything together.

STEP 2. You'll make the soldering job easier if you clamp the circular insulator gently in a vice, so it's held with the back end of the pins facing upwards towards you, oriented as shown in Figure 1.

STEP 3. If you have a cable with two phono plugs at each end then cut the plugs off one end and discard them so you can attach the DIN plug in their place. Cut the cable close to the plugs so you're left with two short "tails" of wire.

STEP 4. You should find the cable is of the shielded variety, so each of the two wire "tails" consists of an outer fine multi-strand wire shielding and an inner signal conductor, also of fine multi-strand wire. Carefully strip about half an inch of the outer plastic sheathing off the end of each wire tail to expose the underlying shielding wire. Pull all the strands from both wires to one side and twist them tightly together to make a single shielding wire for soldering. This should expose the two central signal conductors in their plastic sheathing.

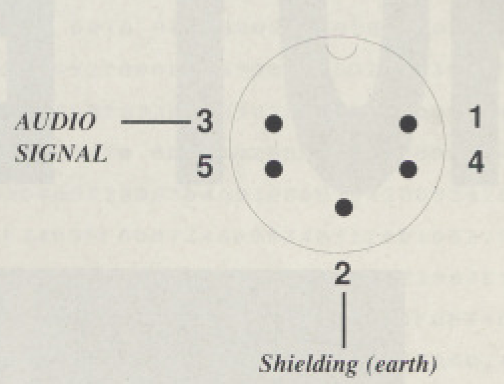


Figure 1 - XL/XE Monitor Socket Connections

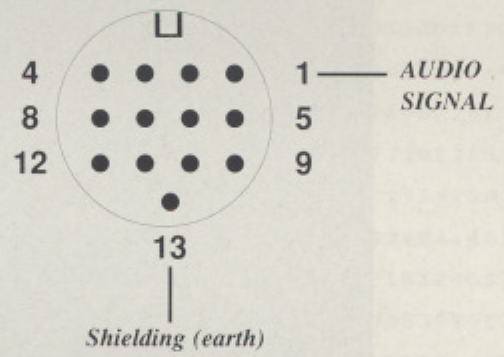


Figure 2 - ST Monitor Socket Connections

Note - the diagrams are from the external socket view, i.e. the same view you get when soldering the wires into the back of the plug

STEP 5. Then very carefully strip about a quarter inch section of the sheathing off each of the central signal conductors to expose the multi-strand wires inside. Twist the strands of both signal wires tightly together to make a single signal wire for soldering.

STEP 6. "Tin" the ends of the two wires by immersing each for a few seconds in molten solder on the tip of the soldering iron.

STEP 7. Thread the DIN plug's plastic cover onto the cable - before you start attaching the plug!

STEP 8. Now for the difficult bit, soldering the wires onto the pins in the back of the circular insulator. First solder the shielding wire to pin 2, the middle pin of the five. Then solder the signal conductor to pin 3, the one on the far left in Figure 1. Ideally, you should insert the tip of the wire into the end of the pin and flow molten solder down around it. Whenever I try this the wire always seems too thick to fit into the pin, so I usually end up soldering it to the outside of the pin instead! This is OK as long as it's FIRMLY attached to the pin. Also, don't use too much solder, or you'll end up with a solder "bridge" between two pins, shorting them out.

STEP 9. Remove the circular insulator from the vice, and press the two metal half shells back into place around it. One half shell usually has a cable clamp, so place the cable in this and bend the clamp's ends over to grip it. Finally, push the plastic cover firmly over the metal body shells to lock everything in place. The cable is now ready for use.

To use the cable, insert the DIN plug into the XL/XE's monitor socket, and the two phono plugs into the left and right channel line inputs of your cassette recorder. If you're using a mono recorder just use one of the plugs. Now boot up a program that plays music on the computer and you should now find you can record it.

You can also plug the cable into the Aux input on your hi-fi amplifier, and hear that 8-bit sound as you've never heard it before! If there's no Aux input on your amplifier you could try other high level inputs, such as CD or Tuner. I suggest you turn the volume control to minimum and switch off the amplifier before plugging and unplugging the cables though, just to be on the safe side. If your cassette recorder is also connected to the amplifier you should now be able to make recordings from the computer as from any other source.

RECORDING THE ST'S SOUND CHIP

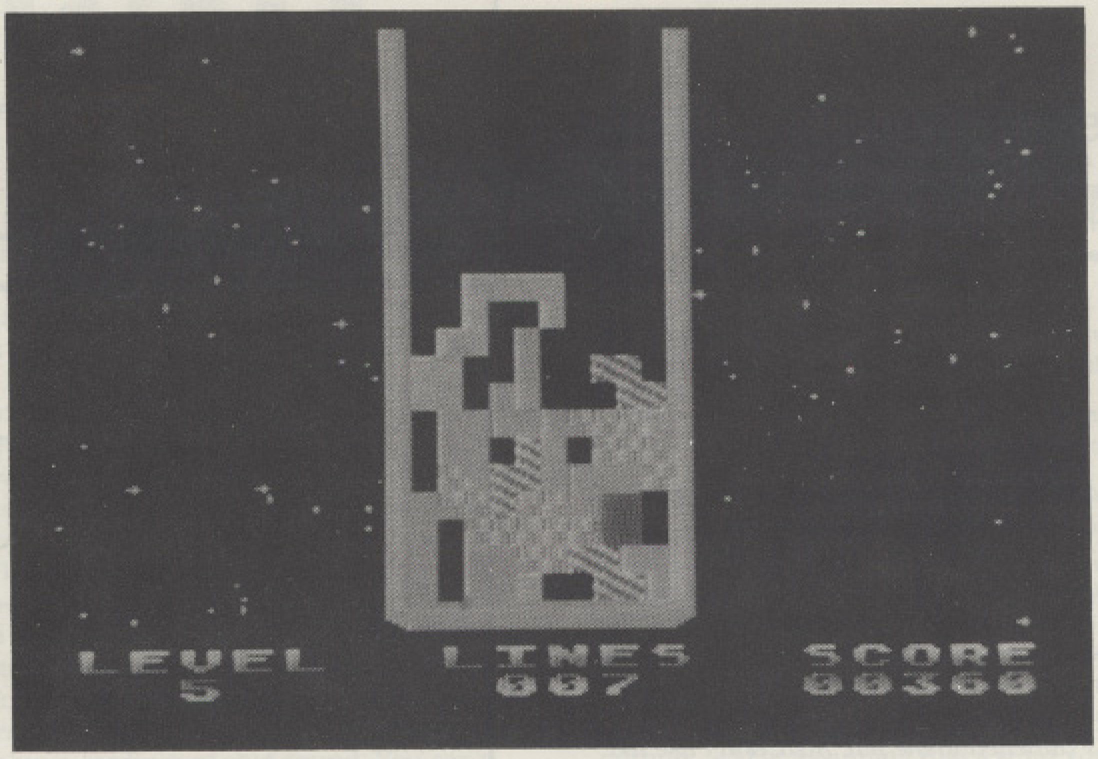
STE owners are lucky, as their machines already have audio output sockets for direct connection to amplifiers and recorders. Other ST users should be able to employ exactly the same principle used with the XL/XE to record the ST's sound chip. The only snag is, the ST uses a special 13-pin DIN plug for its monitor connection, and these are much harder to find than the XL/XE's 5-pin variety. However, I've recently seen them advertised by Switchsoft of Darlington (phone 0325-482454) for £3.50, so call them if you want one. Switchsoft also sell a ready made lead with the ST monitor plug on one end and two phono plugs on the other for just £9.95. I haven't tried one, but it sounds like a great idea if you can't face the hassle of making your own.

If you do want to make your own, refer to Figure 2 for the pin connections on the ST's monitor plug. Then follow the steps described for making the XL/XE plug, but use the ST plug's pin connections instead.

I actually used a different method when recording the ST sound chip for the Music Making cassette, as I was unable to obtain an ST monitor plug at the time. I connected the ST to a Philips portable colour TV via the usual RF cable connection. The Philips has an earphone socket, so I made up a cable to connect this directly to the recorder input. You have to be careful with the TV's volume setting though, as it also controls the level of the earphone signal. The sound quality probably wasn't as good as a direct connection to the monitor socket, but was still far better than recording with the microphone and loudspeaker method.

That's all for now. Next time I'll be looking at some low cost recording equipment you can use with your Atari, and how MIDI can be employed to control and extend its use.

HOT BLOCKS



Paul Lay's version of an ST classic

Hot Blocks is a version of one of the most successful games released on the ST, a simple yet utterly addictive game in which you direct different shaped blocks falling from the top of the screen so that they form completed lines at the bottom with no gaps. Every time a complete line is made, it is removed and all the other uncompleted lines are moved down. The game is over when the screen is full up with uncompleted lines.

Falling blocks can be moved left and right by moving the joystick accordingly. They can also be rotated round by pressing the the trigger. It is possible to drop the block immediately by pulling the joystick down.

Points are scored for every block which is used. The game advances onto harder (faster!) levels when the appropriate number of completed lines are formed.

TYPING IT IN

1. Type in the listing using TYPO 3 to check your work
2. SAVE or CSAVE a copy before you run the program
3. RUN the program which will check your typing as it proceeds. If any lines are incorrect correct them and run the program again
4. Prepare a blank tape or disk and indicate which version you require
5. The program will create a boot tape or AUTORUN disk (ensure that your disk has DOS written to it)
6. Reboot and play!

CONTROLS

Blocks are controlled by a joystick in port 1
Press START or trigger to begin at level 5
Keys 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, begin at the specified level
S key toggles sound on or off
Spacebar pauses/resumes game
ESC aborts a game

HOT BLOCKS

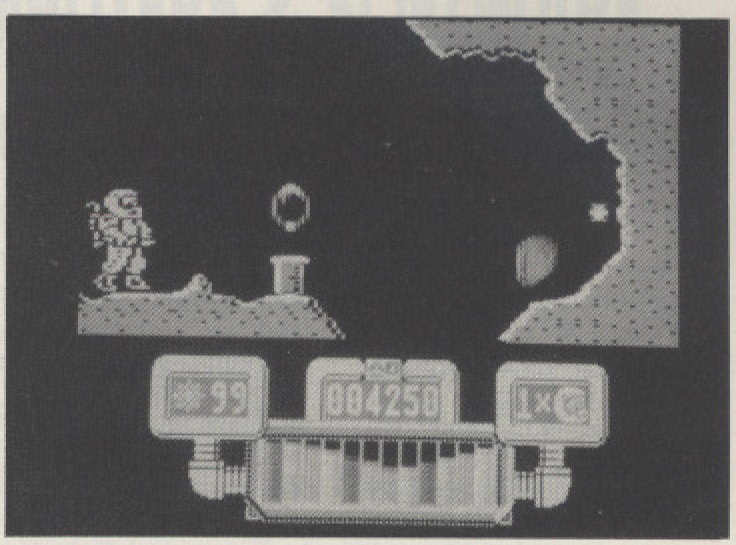
```
EI 1 REM *******************************
TM 2 REM *         HOT BLOCKS          *
LR 3 REM *             by              *
CX 4 REM *          Paul Lay           *
EC 5 REM * --------------------------- *
DZ 6 REM * NEW ATARI USER  OCTOBER '90 *
EO 7 REM *******************************
NN 8 REM
JT 10 GRAPHICS 0:DIM CODE$(97),HEX(22):DA
   TA 0,1,2,3,4,5,6,7,8,9,0,0,0,0,0,0,0,1
   0,11,12,13,14,15
WZ 20 FOR I=0 TO 22:READ J:HEX(I)=J:NEXT
   I:? :? "HOT BLOCKS":WRITING=0:? :? "**
   * CHECKING DATA"
NV 30 TRAP 90:RESTORE 1000:FOR LINE=1000
   TO 1550 STEP 10:? "LINE ";LINE;:CS=0
WG 40 READ CODE$:IF LINE<>PEEK(183)+256*P
   EEK(184) THEN ? " MISSING!":END
FC 50 IF LEN(CODE$)<>96 THEN 90
BI 60 FOR I=1 TO 95 STEP 2:BYTE=16*HEX(AS
   C(CODE$(I))-48)+HEX(ASC(CODE$(I+1))-48
   )
LI 70 IF WRITING THEN PUT #1,BYTE:NEXT I:
   READ TOTAL:? :NEXT LINE:CLOSE #1:? :?
   "*** FILE CREATED":END
XI 80 CS=CS+BYTE:NEXT I:READ TOTAL:IF CS=
   TOTAL THEN ? :NEXT LINE:GOTO 100
SY 90 ? " BAD DATA":END
AF 100 ? :? "*** CREATE FILE":? "C...CASS
   ETTE (BOOT)":? "D...DISK (BINARY LOAD)
   ":POKE 764,255:TRAP 190
GW 110 K=PEEK(764):IF K=255 THEN 110
HU 120 POKE 764,255:IF K=58 THEN 150
GX 130 ? "READY CASSETTE AND PRESS RETURN
   ";:OPEN #1,8,128,"C:":? :RESTORE 200
ZB 140 FOR I=1 TO 8:READ J:PUT #1,J:NEXT
   I:? :? "*** WRITING CASSETTE FILE":WRI
   TING=1:GOTO 30
WB 150 ? "INSERT DISK WITH DOS AND PRESS
   RETURN";:POKE 764,255
GR 160 IF PEEK(764)<>12 THEN 160
IW 170 POKE 764,255:OPEN #1,8,0,"D:AUTORU
   N.SYS":? :RESTORE 210
MV 180 FOR I=1 TO 6:READ J:PUT #1,J:NEXT
   I:? :? "*** WRITING DISK FILE":WRITING
   =1:GOTO 30
GS 190 ? :? "ERROR OPENING FILE":END
ZT 200 DATA 0,22,248,47,152,48,24,96
IT 210 DATA 255,255,0,48,121,58
XM 1000 DATA 0000000000000000555555555555
   5555AAAAAAAAAAAAAAAAFFFFFFFFFFFFFFFFAF
   EBFABEAFEBFABEF5F5F5F55F5F5F5F,7140
ED 1010 DATA 69696969696969696969A6A6A61A
   060169A9A9A9A9A490405569696969696955
   55AAAAAAAAAA5500100000000000000,4496
OA 1020 DATA 00030000000000C0000020000000
   000000C00000020000000000300000000040000
   0000000030EC300C040C0000000000,833
WP 1030 DATA 00000000203000000020BF34A9008D
   0ED4A9228D00D4A9008D08D2A9038D0FD278A9
   538D0802A93A8D09025820F536A900,4003
QF 1040 DATA 8D523A20BF34A9008D0ED4A9348D
   02D4A9328D03D4A9308D09D420D93420563220
   DF34A9FF8DD7348DD834A9128D1832,5241
GU 1050 DATA A9008D1A32AD0AD22907C907F0F7
   AABD1F328D1B3220A834ADA734F0034CED31A9
   038D9B39AE2632BD2732AA200E3AAD,4941
RI 1060 DATA 523AF0034CF7312036392 0D93420
   BF34E002D008A9FF8DD7348DD834CA10DD20B4
   32ADD7348D1D32A9FF8DD734AD1D32,5602
EN 1070 DATA D025AE1B328E1C32BD3E338D1B32
   20A834ADA734D00BA9078D9C3920B4324C7731
   AE1C328E1B32ADD8348D1E32A9FF8D,4833
WI 1080 DATA D834AD1E322902F03AAD1E322908
   F011AD1E322904F022AC1A32C88C1A324C0531
   AE18328E1932E88E183220A834ADA7,4292
FL 1090 DATA 34D03120B4324C9731AE18328E19
   32CA4CA831AC1A32C88C1A328C993920A834AD
   A734D01820D93420BF3420363920B4,4620
WO 1100 DATA 324CC331AE19328E18324C9731A9
   008D9939AC1A32D00C20D23920A53820E3394C
   BB30888C1A3220B432A9008D9A3920,4453
NU 1110 DATA CA35200B364CEB30000000000000
   00000206070B0D11031412100E0C0A08060504
   0302017070704 4A024040404040404,1641
AH 1120 DATA 040404040404040404040404040404
   04208006064134 32A9B085CCA92385CDA900A2
   1DA900A02791CC8810FBA5CC186920,3641
OO 1130 DATA 85CCA5CD690085CDCA10E760A900
   85CDAD1A320A0A0A85CC0A26CD0A26CD65CC85
   CCA5CD690085CDAD18321865CC85CC,5692
UU 1140 DATA A5CD690085CDA9001865CC85CCA9
   2465CD85CD60207C32AE1B328D513385CEBD64
   3385CFA204A000B1CEF00451CC91CC,5977
MM 1150 DATA C8C004D0F3A5CC18692885CCA5CD
   690085CDA5CE18690485CEA5CF690085CFCAD0
   D46000207C32AE1B32BD513385CEBD,6219
GT 1160 DATA 643385CFA204A000B1CCF00AB1CE
   F006A9018DF33260C8C004D0EDA5CC18692885
   CCA5CD690085CDA5CE18690485CEA5,6314
IO 1170 DATA CF690085CFCAD0CEA9008DF33260
   0100030405020608090A070C0B0E0F100D1211
   778797A7B7C7D7E7F7071727374757,4067
XC 1180 DATA 67778797333333333333333333334
   343434343434343434340001000000001000000001
   00000001000000000000000000000001,1492
XX 1190 DATA 0101010000000000000000000020202
   000000020000000000000000000000202000002
```

continued

HOT BLOCKS

```
   000000200000000000000000200000,21
TQ 1200 DATA 0202020000000000000002000002
   00000202000000000000000000000000000003
   030000030300000000000083838300,419
SZ 1210 DATA 8300000000000000830000008300
   00008383000000000000000000000083008383
   830000000000000000000000838300000,1441
SE 1220 DATA 0083000000830000000000000000
   00040400000004040000000000000400000404
   000004000000000000008484840000,690
JQ 1230 DATA 8400000000000000000000840000
   00848400008400000000000000008400008484
   840000000000000000000084000084,1452
WD 1240 DATA 8400000084000000000000000000
   00008585008585000000000000008500000085
   850000008500002 0F432ADF332F006,2366
BF 1250 DATA A9018DA7346020B432A9008DA734
   60AD0BD4D0FBADD7342D10D08DD734ADD8342D
   00D38DD834600000AD0BD4F0FB60A2,5832
XZ 1260 DATA 40AD0AD2293FC90E3008C92810F3
   C91A30EF8D1832AD0AD2291FC91A10F78D1A32
   207C32AD0AD2290718690BA00091CC,4529
LM 1270 DATA CAD0CEA9098DAE248DB924A9D685
   CCA92485CDA214A906A00091CCA00B91CCA5CC
   18692885CCA5CD690085CDCAD0E6A9,6653
XY 1280 DATA 07A00091CCA908A00B91CCA90AA0
   0A91CC88D0FBA9BA8D16D0A9FC8D17D0A9368D
   18D0A9888D19D0A227BD8B359D1028,6095
JE 1290 DATA CA10F7A9008D2C3620B335A92D8D
   0002A9368D0102A9808D0ED460002C2536252C
   00006C696E65730000B3A3AFB2A500,4236
FF 1300 DATA 0000100000000000050505000000
   9090909090AE2632BDBD358D27286010111213
   1415161718190 11F0AA203BD332818,2701
SE 1310 DATA 6901C99AD009A9909D3328CA10EE
   609D332860A202BD2D28186901C95AD009A950
   9D2D28CA10EE609D2D28AE2632E00C,4994
BC 1320 DATA D00160AD2C36186901DD1F36F004
   8D2C3660E88E263220B335A9008D2C36602828
   23231E1E1919141414147F00488A48,3570
MF 1330 DATA A9E08D09D4A20FBD5B368D0AD48D
   16D0BD6B368D17D0BD7B368D18D0CA10E8A930
   8D0AD48D09D468AA6840BA1E1C1A18,5589
UJ 1340 DATA 161600009696989A9C9E00FC4E4C
   4A4846460000A6A6A8AAACAE0036DEDCDAD8D6
   D600000606080A0C0E00A9CF85CCA9,4968
SE 1350 DATA 2785CDA200A009B1CCF001E88810
   F8E000F014E00AF011A5CC38E92885CCA5CDE9
   0085CD4C93366020E335A5CC85CEA5,6471
SM 1360 DATA CD85CFA5CE38E92885D0A5CFE900
   85D1A200A009B1D0D001E891CE8810F6E00AD0
   034C9336A5CE38E92885CEA5CFE900,6805
PP 1370 DATA 85CF4CC33620BF34A9498D02D4A9
   378D03D4A9668D0002A9378D0102A9808D0ED4
   20D934AD10D0D006A9058D263260AD,5147
FY 1380 DATA 1FD02901F0F3AD5B3AA0FF8C5B3A
   A209DD3F37F006CA10F84CF5368E263260321F
   1E1A181D1B333530707070700B047DD,4998
WH 1390 DATA 3770067006700670067006700670
   0670077006414937488A489848A210ACDB378C
   0AD48C16D088CAD0F6A278A9F7A000,4823
MM 1400 DATA 8D0AD48D16D08C18D038E901C8CA
   D0F0A208ACDB378C0AD48C16D0C8CAD0F6A208
   8C0AD48C16D088CAD0F6A947A090A2,6850
XS 1410 DATA 108D0AD48D16D08C18D038E901C8
   CAD0F0ACDC37C8C008D009ACDB37C88CDB37A0
   008CDC3768A868AA68400000000000,5675
JY 1420 DATA 0000282F3400222C2F232B330000
   000000000000223900B0A1B5AC00A38E00ACA1
   B900000000000000000000232F2E3432,2227
PB 1430 DATA 2F2C33000000000000B3B4A1B2B4
   8FB4B2A9A7A7A5B29A222527292E0000000000
   00100E0E191AACA5B6A5AC00000000,3669
KJ 1440 DATA 00000000000000B39A00332F352E
   240000000000000000000002533232130251AA1
   A2AFB2B400000000000000B3B0A1A3,2368
OF 1450 DATA A5A2A1B29A302135332500000000
   00000000282927280033232F32250000000000
   2C2536252C00900033232F32250090,2146
IU 1460 DATA 9090909000A24020BF3420D934CA
   D0F720BF34A9008D0ED4A9E08D09D4A2039D16
   D0CA10FAA9118D02D4A9398D03D4A2,5906
JJ 1470 DATA 0020BF348E16D020D93420BF3420
   D93420BF3420D934E8E010D0E6A24020BF3420
   D934CAD0F7A20F20BF348E16D020D9,5542
IK 1480 DATA 3420BF3420D93420BF3420D934CA
   10E86070707070707070707070704722394111
   39000000000000027212D25002F3625,3575
UI 1490 DATA 320000000000AD513AD00160AC9A
   393010599D398D07D2B9A6398D06D2888C9A39
   AC9B393010B9AF398D05D2B9B3398D,4906
RX 1500 DATA 04D2888C9B39AC9C393010B98739
   8D03D2B9BF398D02D2888C9C39AD9939300AF0
   098D00D2A9AA8D01D260A9008D00D2,5553
EA 1510 DATA 8D01D2A9FF8D993960FFFFFFFF00
   4F4F4F4D4A48444200080889098A0A8B0B800AA
   ACAE00302C280028282A2A2C2C2C00,5029
XP 1520 DATA 4040404040404040A900A2079D00D2
   CA10FA60A9FF8D99398D9A398D9B398D9C394C
   C739A200BD9F38DD3328300AD01EE8,5289
XG 1530 DATA E005D0F14C0D3AA204BD33289D9F
   38CA10F7AE2632BDBD3509808D973860AD5B3A
   C9FFD00160C91CD008A9FF8D523A4C,5691
ZI 1540 DATA 4B3AC93ED00EAD513A49FF8D513A
   20D2394C4B3AC921D013A9FF8D5B3A20C739AD
   5B3AC9FFF0F9C921D0F5A9FF8D5B3A,6177
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SPACE RIDER JET PACK CO.



Good news! Not just a new game but a new release from a new company to the Atari scene called Hi Tec (don't they make training shoes?) who now have a number of games lined up for your Atari. SPACE RIDER JET PACK CO. is at present the only original game in the batch - the others are re-packaged oldies from First Star - but hopefully there will be more to follow in the near future.

In this game you assume the role of Chief test pilot for the Space Rider Jet Pack Company who have just finished work on an experimental jet pack known as the "S.R. MK8". The company have sent you on an expenses paid trip to the 23rd planet (a hostile environment with unusual gravity and alien inhabitants) to test out their new contraption. Coincidentally, the planet is a source of valuable minerals used by the S.R. research laboratories so to kill two birds with one jet pack you have been politely asked not to return without a substantial quantity! Naturally, the aliens aren't exactly thrilled with the prospect of you stealing their minerals so you can be sure there will plenty of nasties awaiting your arrival!

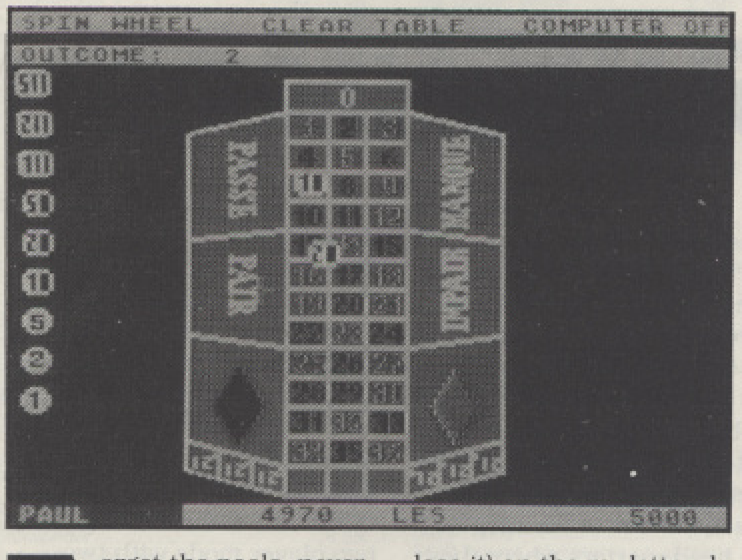
Your job is to guide the test pilot through the dangerous caverns, collecting minerals and avoiding the many traps and adversaries. Your character is large in proportion to the size of the playfield, so the obstacles can be quite difficult to negotiate. You can shoot at aliens, but they retaliate by homing in on your position at astonishing speed. The cavern complex is huge and mapping may be the only way you will ever find the entire quota of a hundred minerals. The screens 'flip' rather than scroll but the graphics are nicely done and there is a good variety of animated aliens, barriers and traps. Unfortunately, the sound is of the familiar low standard associated with much Atari software, but this is a minor gripe in a game which has many commendable features.

It takes a brave company nowadays to launch into the 8-bit market but Hi Tec have done it admirably. Congratulations to them and due credit to P.A.L. developments, the originators of this, and many other recent Atari games. What are you waiting for? Rush out and buy it!

Title:	SPACE RIDER JET PACK CO.
Publisher:	**Hi Tec Software**
Price:	**£2.99 cassette**
Players:	**1**
Loading:	**11'00"**

Reviewed by Paul Rixon

ROULETTE SIMULATOR



Forget the pools, never mind the races - Byte Back offer you a chance to break the bank and win a million the easy way, with a painless gamble on their new ROULETTE SIMULATOR.

You start the game with the grand sum of £5000, generously donated by the casino. Although you might be tempted to spend this on a car, a holiday or 500 years subscription to New Atari User, unfortunately the rules stipulate that you have got to use it (or lose it) on the roulette wheel. The computer displays the table of numbers and the piles of chips and waits for you to place a bet. There are ten different ways to gamble with associated odds. En Plein is a single number bet and naturally has the highest odds at 35-1. En Carre gives you four numbers in a square at 8-1 whilst the more cautious gamblers can place their chips for a single column of numbers - Colonne at a reasonably probable 2-1. The various combinations are all explained on the cassette inlay.

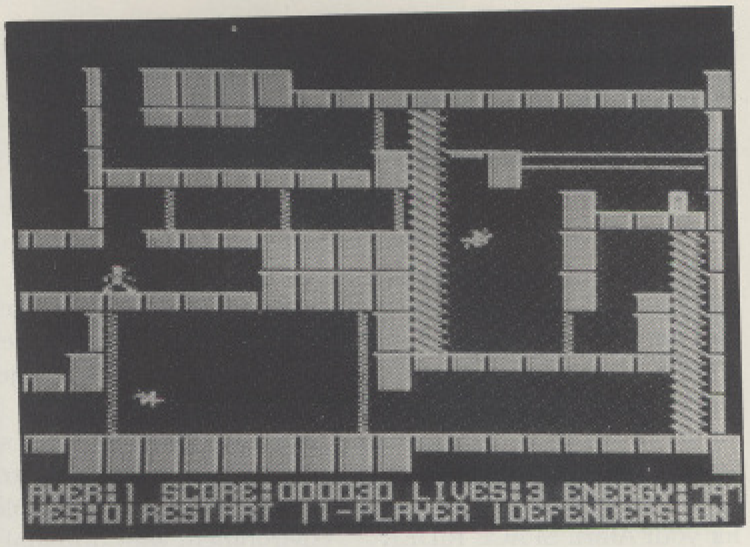
You can place up to a maximum thirty-two bets before settling back to watch the graphical delight of the roulette wheel spinning - definitely the most interesting part of this game. The accompanying sound though, a sort of muffled scratching noise, leaves a great deal to be desired! Up to four players can compete, or the computer will stand in for a one player game. Only one joystick is used, so the players must either designate a 'controller' or pass it around for each go. The process of dragging the chips to the required numbers is quite frustrating as the joystick pointer frequently 'drops' the chip you are moving or refuses to place it in the position you intended. The controls are unresponsive and inconsistent and annoyingly, you are required to manually clear the table between every go - even though you have no other option than to do so! If you run out of money there is no indication or warning and the computer simply continues to play by itself. This doesn't exactly encourage perseverance!

Apart from the rather nicely animated spinning roulette wheel, I'm afraid I can't find anything positive to say about Roulette Simulator at all! It's dull, frustrating and, in places, downright unprofessional! Byte Back can do much better than this. A disappointing effort.

Title:	ROULETTE SIMULATOR
Publisher:	**Byte Back**
Price:	**£2.99 cassette**
Players:	**1/4**
Loading:	**16'10"**

Reviewed by Paul Rixon

A-ZONE



Reviewing another mid-priced game from B.Ware presents me with an opportunity of apologising to the 'DAX' programmers (whoever they may be!) for confusing their initials with the name of a certain well-known washing powder in a previous article. Sorry for the slip-up, guys!!

As if in retaliation, my review copy of their latest achievement, A-ZONE, arrived without any packaging or instructions - I cannot, therefore, give you the official plot of this one, although judging by DAX's previous efforts it is almost certain to involve aliens, monsters and the world's destruction - and similarly pleasant topics! The game itself appears to be a fairly standard multi-screen platform game in which your job is to manoeuvre a character through various passages collecting mysterious boxes and avoiding contact with deadly 'laser' barriers. Die-hard arcadians can optionally invoke alien 'defenders' to liven up the challenge although they are relatively pleasant when compared with the biggest hindrance, which is without any shadow of doubt the OBNOXIOUS sound! Even Escaper (see review in issue 48) is given a solid run for its money!

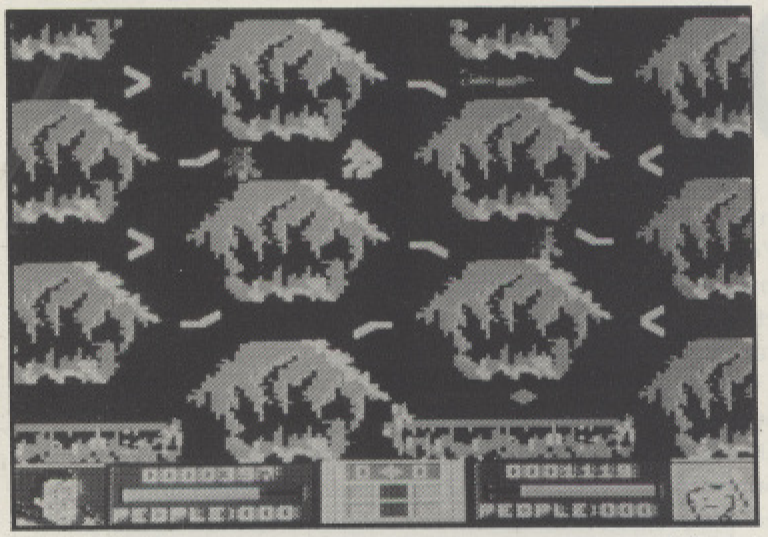
A further complication is implemented in the traditional fashion by an ever-decreasing energy supply, although it's not as much of a problem as it initially seems. The supply is replenished by accumulating points, and these are gained by, among other things, travelling from one screen to another, so some devious skipping across the boundaries can often get you out of a tricky situation. There is also an optional 'continue mode' so that if you lose a life, you begin play with the new one at the point you had previously reached. The graphics are reasonably clear and colourful and the joystick response is surprisingly good - but I have some reservations when it comes to the important subject of lasting appeal.

There's not a great deal more I can say about A-Zone - it's a very simple game that is not outstanding in any respect but it is quite playable and may well appeal to those who were bought up on Caverns of Khafka (who remembers that one?) and the like. If it sounds up your street, don't rush down to your local software store as A-Zone is only available directly from B.Bytes, the Hinckley based computer dealer, whose advertisement you should find in this issue.

Title:	**A-ZONE**
Publisher:	**B.Ware Software**
Price:	**£4.95 cass/ £4.95 disk**
Players:	**1**

Reviewed by Paul Rixon

SUPERMAN



You've seen the film, read the comic, worn the outfit and whistled the theme tune - but have you played the game? No, it's not a bird or a plane ... it's Fernando Herrara's SUPERMAN from First Star, re-packaged at a bargain price by Prism:

He came from the planet Krypton with incredible powers and abilities. He's mankind's champion in the eternal battle between good and evil - faster than a speeding bullet, more powerful than a locomotive and able to leap skyscrapers in a single bound. Superman's quest is to rid the planet of arch-enemy Darkseid, who plans a reign of terror and destruction! That's dealt with the rather abundant hype associated with this game, so let's move onto the relatively straightforward objective which is to round-up the citizens of Metropolis. Darkseid seeks to imprison the people whilst, of course, Superman's job is to save them. The player who eventually acquires the most citizens, or whose opponent runs out of energy, is the victor. In a single player game, you can choose to command either character.

Metropolis is divided into six screens representing the streets, sewers and tunnels of the city. The players must collect a pre-determined number of objects to qualify for transfer to an adjacent screen - the intention is to guide the citizens closer to the respective headquarters where they add to the overall score. There's a further complication provided by 'combat zones' preceding certain locations in which the initiating player must win a direct battle with his opponent to advance onto the required screen. Both Superman and Darkseid have special powers to inhibit each other's progress - Superman can activate a heat beam whilst Darkseid has an 'Omega Ray' with similar properties. Deflectors positioned at street intersections divert these dangerous emissions and are also useful for channeling citizens in the desired direction.

I have to admit that Superman has never been one on my favourite First Star games - despite the pleasant graphics and novel theme, I don't rate it highly in terms of playability. As a one player game it tends to become rather boring, but two player mode with two reasonably matched opponents is potentially more exciting - so if you really have watched the film, sported the outfit and still have an appetite for more, why not search for some human competition and grab a copy of Superman!

Title:	**SUPERMAN**
Publisher:	**Prism Leisure Corp.**
Price:	**£2.99 cassette**
Players:	**1/2**
Loading:	**9'45"**

Reviewed by Paul Rixon

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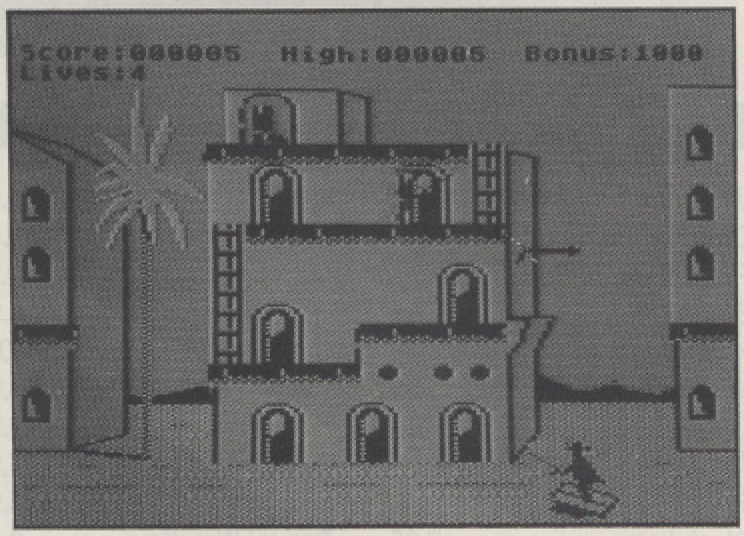
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ATARI ACES



A 'master games' collection from U.S.Gold featuring three oldies from Sega - the company infamous for producing lacklustre micro conversions of their conversely spectacular arcade machines - and a fourth offering from Datasoft. The latter, a multi-screen arcade adventure starring Johnston McCulley's legendary masked crusader ZORRO is (not surprisingly) the highlight of this compilation.

Zorro's quest is to rescue a beautiful senorita who has been kidnapped by the evil Sergeant Garcia. The perilous journey leads through a variety of locations and Zorro must utilise numerous objects before gaining access to the damsel in distress. The combination of pleasant graphics, reasonable sound and some ingenious puzzles result in a challenging and addictive adventure. However, disk drive owners would be wise to seek out the disk version of Zorro which incorporates a number of extra surprises.

Sega's UP 'N DOWN is possibly one of the strangest arcade games ever - the aim is to control your 'Baja Buggy' through a scrolling, zig-zagging raceway whilst collecting a series of flags from the roadside. Opposing pick-up trucks and 'wedge cars' seem to materialise from thin air and head straight towards you, intent on fatal collision. You can jump to avoid them but the consequence of a mis-timed landing can prove equally unpleasant! SPY HUNTER is another car game in which you endeavour to manoeuvre a turbo-charged spy mobile at high speed whilst pursued by enemy agents who are hell bent on your destruction. The game is played from an overhead viewpoint (to the melodic tones of Duane Eddie) and the action unfolds over a constantly scrolling landscape with forked junctions, icy roads and enemy helicopters adding to the excitement.

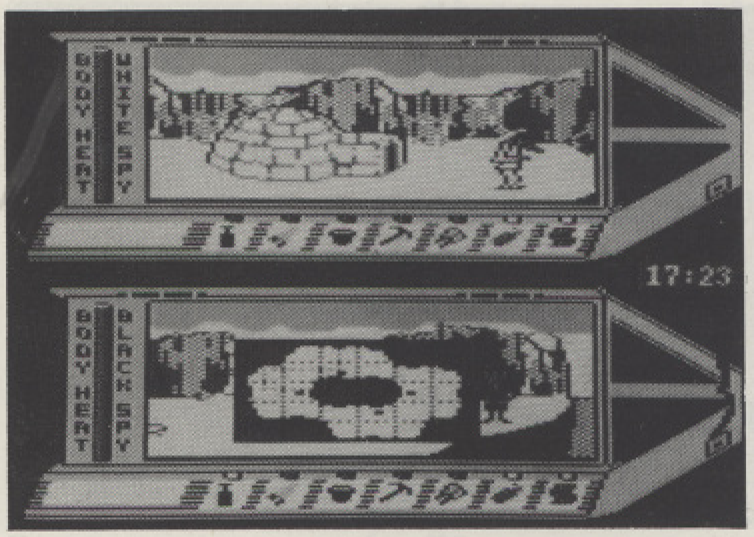
On a completely different note, TAPPER places you in command of a frenzied bartender in his quest to sling sodas at impatient punters and retrieve empty glasses before they slide off the counter. You can distract the customers by calling up the 'dancing girls' but the thirsty crowd isn't kept occupied for long! Tapper is an addictive game although, like Zorro, it loses out to the disk original which offers several additional screens.

ATARI ACES is well worth the asking price for Zorro alone and you also get three playable arcade games of yesteryear into the bargain. If you haven't seen these titles before, it's time to snap them up!

Title:	**ATARI ACES**
Publisher:	**U.S.Gold**
Price:	**£4.95 cassette**
Players:	**1/2**
Loading:	**10'45" (max)**

Reviewed by Paul Rixon

SPY VS SPY III
ARCTIC ANTICS



ARCTIC ANTICS is the third game in First Star's Spy vs Spy series featuring the two zany secret agents - one dressed in black, the other in white - from the American comic MAD. The original full-priced game and its first sequel have been on sale for some time but, courtesy of Hi Tec, you can now obtain the complete trilogy in budget packaging.

In Arctic Antics your spy's mission is to locate and launch an inter-galactic rocket before a blizzard hits the Arctic island where the necessary components are hidden. You need three objects - an Entry Punch Card, Guidance Gyroscope and Uranium Fuel Capsule - to launch the missile but first you must find the launch briefcase so you can transport several items in one go. There are a number of natural hazards such as blizzards, deep snow and thin ice but the biggest irritation is your opponent, either computerised or human, whose objective is the same as yours! Only one of you can win the game, so it may be necessary to lay traps or even engage in a one-to-one snowball fight!

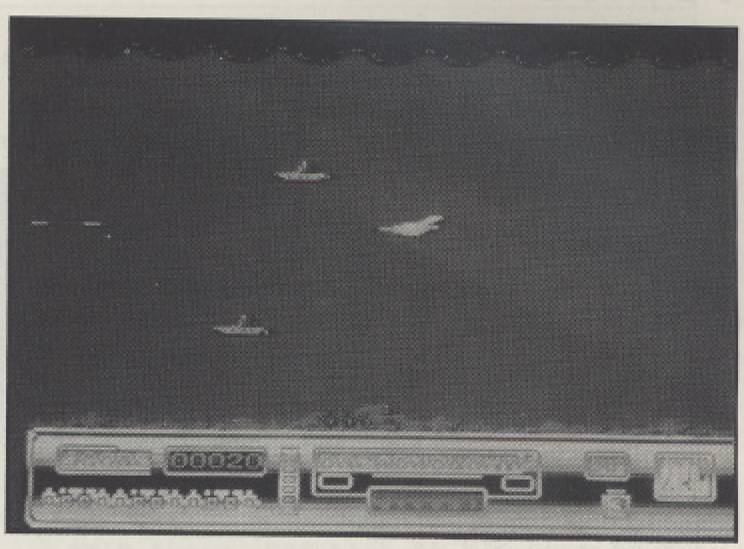
The graphics are almost identical in style to the original Spy vs Spy games. The screen is split into two windows giving each player a side-on, semi 3-D view of the action. The scenery scrolls as you run from one location to another and you can also move 'in' and 'out' of the screen to other sections of the island. If you enter the same area as your opponent, one window is temporarily blocked out so that both players have the same screen view. At the beginning of the game you can select a variety of islands as well as the difficulty level - a map is available to help you navigate the more complex layouts.

If you're a fan of the previous Spy vs Spy titles you will be overjoyed with Arctic Antics since it has all the charm, challenge, fun and addictiveness of its predecessors. If you haven't experienced any of them, I can highly recommend the complete trilogy. One minor drawback is that Arctic Antics is a long, long, loader with lots of rewinding and waiting involved. Although the game itself is well worth the hassle, impatient disk drive owners would be well advised to search for the disk original!

Title:	**SPY VS SPY III**
Publisher:	**Hi Tec Software**
Price:	**£2.99 cassette**
Players:	**1/2**
Loading:	**20'40"**

Reviewed by Paul Rixon

DREADNOUGHT



Red Rat were once amongst the most prolific 8-bit software houses and brought a string of top-notch games onto the market. Byte Back are now re-issuing the majority of this range at budget prices, spelling excellent news for game-starved Atarians who now have a chance to pick up some excellent quality software without paying the once customary high price for it. In the case of DREADNOUGHT, I'm not sure that Red Rat ever got around to an official release, so its appearance on the Byte Back label is especially welcome.

Title:	**DREADNOUGHT**
Publisher:	**Byte Back**
Price:	**£2.99 cassette**
Players:	**1**
Loading:	**23'00" (phew!)**

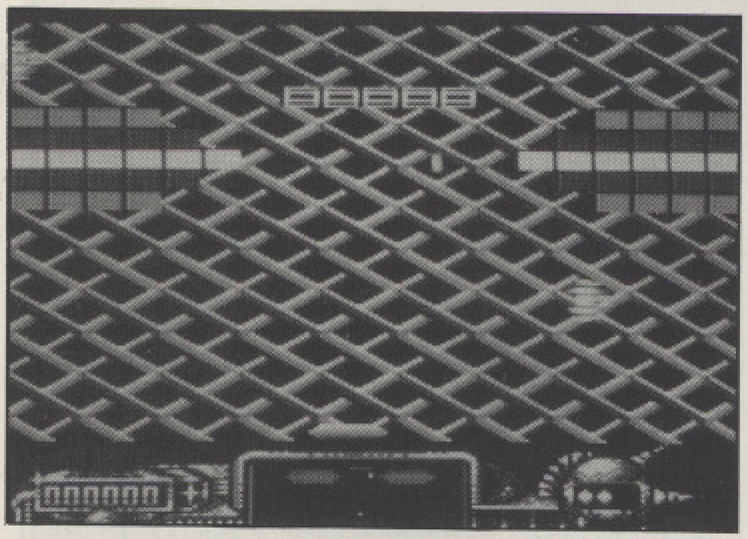
Reviewed by Paul Rixon

The story would have you believe that an underwater city is being attacked by aliens. Only you have access to civilisation's most powerful weapon - the Dreadnought - and yes, only you can use it to secure the survival of your endangered planet. Well, believe it or not, this is actually the build-up to a submarine adaptation of Defender, the classic Atari arcade hit which spawned a number of clones including the fabulous Dropzone - one of the best Atari shoot 'em ups ever! For those not familiar with this popular format, the idea is basically to zoom around a horizontally scrolling playfield blasting waves of attacking craft as they head towards you. You have to be quick to avoid them as any contact with the adversary is instantly fatal.

Visual delights include well-animated players, a topically edged backdrop and a superb status panel below the main playing area. The highlight of the graphics is the stunning result of a hit by an alien craft or missile - the Dreadnought explodes into a colourful, glittering fountain of fragments. The sound adds a further sparkle to the presentation with plenty of atmospheric noises and a liberal selection of effects. In fact, the only criticism I could level at Dreadnought doesn't concern the game itself but rather the method of production. The incredible loading wait of over twenty minutes is entirely due to the program format having long inter-record gaps, a frustrating and unnecessary burden on the user.

Byte Back have thus far produced a mixed bag of goodies and not-so-goodies for the Atari, but in adopting a substantial portion of Red Rat's output from the past few years they have acquired an unbeatable range of high quality software which is assured a positive reception from all concerned. Dreadnought is one of the best.

EXPLODING WALL



For some reason I'd imagined EXPLODING WALL to be a Karate simulation (perhaps I was thinking of 'Way of the Exploding Fist' on the Commodoorstop!), and was therefore a bit disappointed when it turned out to be a clone of Imagine's Arkanoid! There's nothing wrong with Arkanoid of course, but with its recent re-release in budget format and Atlantis Software's similarly styled Crack-Up threatening close competition, there's not exactly a games shortage for fans of the original arcade hit Breakout!

Breakout, or Exploding Wall for that matter, is the game in which you have to knock down rows of bricks by moving a bat across the screen so that a tiny moving ball is prevented from escaping. If the ball destroys a brick, you've won a point, but if the ball travels past your bat then you've lost a life - it's really as simple as that! Arkanoid was the game that introduced a host of distractions to liven up the action, and they're all here in Exploding Wall - aliens float around each screen and can deflect the ball when you least expect it, and bonus capsules float inticingly towards you. The latter can provide you with laser fire, missiles, speed control and extra lives or cause the ball to split into several pieces. This can be useful, but you mustn't forget the ultimate aim to keep that ball in play!

Exploding Wall differs slightly from its predecessors in that the playfield stretches over two screens, scrolling horizontally as you guide the bat from side to side. The graphics aren't as good as the Arkanoid scenery, but are beyond criticism generally and include some impressively animated fuji symbols on the introductory screen! Unfortunately, the colours and backdrops are identical throughout all twenty levels - some variation here would have added a professional touch to the presentation. The sound is adequate, though only just!

I find it difficult to get very excited about Exploding Wall - it's by no means a bad game (albeit not a Karate one!) but it offers nothing really new over Crack-Up and falls well short in matching Arkanoid on style. Not to worry, however - I hear Byte Back have re-released the bulk of Red Rat's software range at budget prices, including Speed Run and Screaming Wings. If you don't have these goodies already, I'd advise you to make amends!

Title:	**EXPLODING WALL**
Publisher:	**Byte Back**
Price:	**£2.99 cassette**
Players:	**1**
Loading:	**13'45"**

Reviewed by Paul Rixon

ARNIE

Ann O Driscoll presents a quiz program for children of all ages

ARNIE is a simple quiz/educational type program suitable for children of all ages since you create your own word lists according to the ability of your child. The program includes an easy to use question maker.

The aim of the game is to get the little alien, Arnie, from the top of the screen to his spaceship, the ARN 1, at the bottom. To do this you must move him through a number of doors, each of which is unlocked when two questions are answered correctly. When you reach a door try and move through it and the first of the questions will appear. The answers are given as 'multiple choice answers and it is simply necessary to press the number key for the answer required. If both questions are answered correctly, Arnie can continue to the next door until finally he makes it out to his ship.

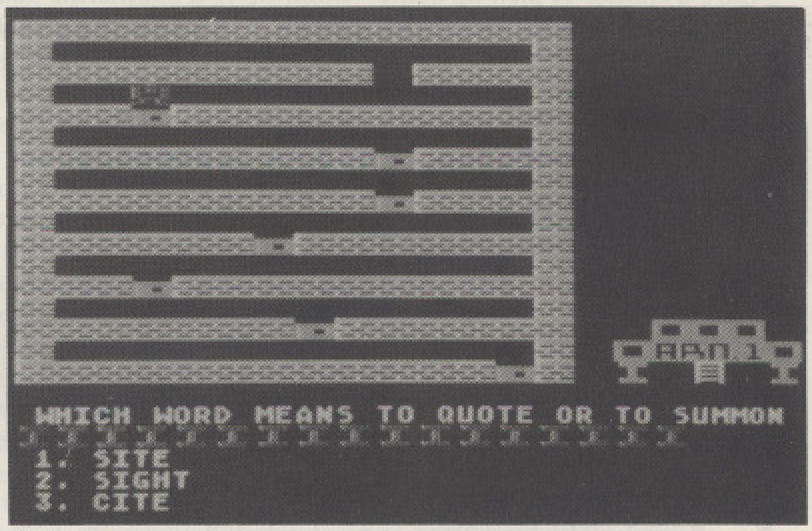
MAKING UP QUESTIONS

The disk for this issue contains two ready made question files, EUROCAP, a quiz on the capitals of European countries and WORDS, a sort of spelling test using homonyms - the ones that sound alike such as they re/there/their. You can however easily set up your own question files each containing 20 questions and answers by using the Question Maker included in the program. The screen prompts should make this option easy to use, even for beginners.

Questions may be typed in any format but if all of your questions start in the same way, (e.g. Give the chemical symbol for ...., What is the capital of ... etc.), you should select the Fast Entry option and then the opening phrase only has to be typed in once instead of 20 times.

That s about it - the program is simple to use and should provide a nice challenge to all ages, depending on how difficult you make the questions. You can use it for first reading, spelling tests, foreign languages, in fact any type of learning. All you have to do is provide the questions and answers.

The program will work with cassette as well as disk and will run on any Atari 8-bit machine.




```
EI 1 REM ******************************
ED 2 REM *          ARNIE             *
LR 3 REM *           by               *
SR 4 REM *      Ann O'Driscoll        *
EC 5 REM * -------------------------- *
DZ 6 REM * NEW ATARI USER  OCTOBER '90 *
EO 7 REM ******************************
NN 8 REM
NM 29 REM  SET THINGS UP + MENU
TA 30 NQ=20:LQ=39:LA=15:CLOSE #3:OPEN #3,
   4,0,"K:":POKE 702,64:POKE 694,0
TW 40 DAT=380:PK=400:BRK=440:FLSH=450:SCR
   N=470:BLNK=490:FNAM=600:INOUT=760
ZI 50 DIM BL$(LQ),DA$(LQ),Q1$(LQ),Q2$(25)
   ,FILE$(14),MC$(34):DA$(1)="-":DA$(LQ)=
   "-":DA$(2)=DA$
SG 55 DIM SP1$(5),SP2$(5),SP3$(5):SP1$="
   &&& ":SP2$="&()+&":SP3$="*    *"
HE 70 DIM Q$(NQ*LQ),R$(NQ*LA),W1$(NQ*LA),
   W2$(NQ*LA),A$(LQ),B$(LA),C$(LA),D$(LA)
   ,SC$(LQ),F(NQ)
XR 75 Q$(1)=" ":Q$(NQ*LQ)=" ":Q$(2)=Q$:R$
   =Q$:W1$=Q$:W2$=Q$:BL$=Q$:GOSUB 1000
TM 100 GRAPHICS 18:POKE 708,138:POKE 709,
   54:POKE 711,28:GOSUB BRK:R=2
ZC 110 COLOR 43:PLOT 1,0:DRAWTO 19,0:DRAW
   TO 19,10:DRAWTO 1,10:DRAWTO 1,1
GJ 115 POSITION 5,2:? #6;"play a game":PO
   SITION 5,5:? #6;"make a file":POSITION
    5,8:? #6;"end program"
SF 130 POSITION 2,11:? #6;"select THEN st
   art";:CC=139:GOSUB 160
NU 135 IF PEEK(53279)=6 OR STRIG(0)=0 THE
   N GOTO R*1000
HI 140 IF PEEK(53279)<>5 AND STICK(0)<>13
    AND STICK(0)<>14 THEN 135
IN 150 CC=32:GOSUB 160:CC=139:R=R+3:IF R>
   8 THEN R=2
EU 155 GOSUB 160:FOR D=1 TO 25:SOUND 0,30
   ,10,12:NEXT D:SOUND 0,0,0,0:GOTO 135
```

continued

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CI 160 COLOR CC:PLOT 4,R-1:DRAWTO 16,R-1:
   DRAWTO 16,R+1:DRAWTO 4,R+1:DRAWTO 4,R:
   RETURN
SA 378 REM
FP 379 REM  FILL THE STRINGS
LS 380 Q$(LQ*(N-1)+1,LQ*(N-1)+LEN(A$))=A$
   :R$(LA*(N-1)+1,LA*(N-1)+LEN(B$))=B$
FJ 385 W1$(LA*(N-1)+1,LA*(N-1)+LEN(C$))=C
   $:W2$(LA*(N-1)+1,LA*(N-1)+LEN(D$))=D$:
   RETURN
OW 399 REM  SCREEN ROUTINES
PY 400 FOR W=1 TO LEN(SC$):POKE SC+360+W,
   ASC(SC$(W,W))-32
GT 410 IF J=1 THEN SOUND 0,P,10,V:FOR D=1
    TO 20:NEXT D:SOUND 0,0,0,0
HT 420 NEXT W:J=0:RETURN
LT 440 POKE 16,64:POKE 53774,64:FOR P=100
    TO 0 STEP -4:SOUND 0,P,10,12:NEXT P:R
   ETURN
PE 450 FOR D=1 TO 20:IF PEEK(53279)<>6 AN
   D STRIG(0)<>0 THEN NEXT D:POKE 755,2-P
   EEK(755):GOTO 450
NG 460 POP :POKE 755,PP:RETURN
KT 470 GRAPHICS 0:DL=PEEK(560)+256*PEEK(5
   61):POKE DL+6,6:POKE DL+7,7:POKE 710,0
   :POKE 708,54:POKE 709,28
BX 480 GOSUB BRK:POKE 82,0:POKE 83,39:POK
   E 752,1:RETURN
OE 490 FOR Y=16 TO 20:POSITION 0,Y:? BL$:
   NEXT Y:POSITION 0,16:RETURN
JR 599 REM  NAME + DIRECTORY
KM 600 POSITION 0,12:? B$;" TAPE OR DISK
   [T/D]?";BL$(30)
PM 610 GET #3,KEY:IF KEY<>84 AND KEY<>68
   THEN 610
PO 615 POSITION 0,12:IF KEY=68 THEN FILE$
   (1,2)="D:":GOTO 630
PR 620 FILE$="C:":? "Insert the tape and
   press PLAY    ";:IF B$(1,1)="S" THEN ?
    "++++ & RECORD";
DC 625 ? :? "then press RETURN on the com
   puter.":RETURN
PB 630 ? "INPUT Filename";BL$(25):IF B$(1
   ,1)="L" THEN POSITION 15,12:? "[type D
   IR for file list]"
LH 640 POSITION 0,15:? "D:";:INPUT #16;A$
   :IF A$="DIR" AND B$(1,1)="L" THEN 660
SM 650 FILE$(3)=A$:GOTO 690
NJ 660 CLOSE #2:OPEN #2,6,0,"D:*.ARN":POS
   ITION 0,12:? "PUSH  SPACE  TO CYCLE  R
   ETURN  TO PICK ":DIR=-1
EU 665 INPUT #2,A$:DIR=DIR+1:IF LEN(A$)<1
   7 THEN LN=660:GOTO 930
OU 670 POSITION 0,15:? "FILENAME    ";A$(
   3,10):GET #3,KEY:ON KEY=155 GOTO 680:O
   N KEY=32 GOTO 665:GOTO 670
JE 680 FOR N=3 TO 10:IF A$(N,N)=" " THEN
   FILE$(3)=A$(3,N-1):POP :GOTO 690
SH 685 NEXT N:FILE$(3)=A$(3,10)
BX 690 FILE$(LEN(FILE$)+1)=".ARN":RETURN
LB 759 REM  IN/OUT AND CIO
VU 760 A=ADR(Q$):L=LQ*NQ:GOSUB 780:A=ADR(
   R$):L=LA*NQ:GOSUB 780:A=ADR(W1$):GOSUB
    780:A=ADR(W2$):GOSUB 780
HR 770 CLOSE #1:RETURN
PE 780 IOCB=848:POKE IOCB+2,F:HI=INT(A/25
   6):LO=A-HI*256:POKE IOCB+4,LO:POKE IOC
   B+5,HI
ZU 790 HI2=INT(L/256):LO2=L-256*HI2:POKE
   IOCB+8,LO2:POKE IOCB+9,HI2:I=USR(ADR("
   hhhXLVd"),16):RETURN
FW 899 REM  TRAPS AND ERRORS
HG 900 POSITION 0,18:? "KERROR ";PEEK(195
   );" at line ";PEEK(186)+256*PEEK(187);
   " !!!  Push a key":GOTO 950
MI 930 POSITION 0,18:? "Number of files f
   ound = ";DIR:? "Put in another disk an
   d push a key"
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```
MF 950 GET #3,KEY:CLOSE #1:CLOSE #2:FOR Y
   =15 TO 19:POSITION 0,Y:? BL$;:NEXT Y:G
   OTO LN
VE 999 REM  TITLE SCREEN  1000 - 1100
IP 1000 GOSUB SCRN:POSITION 16,0:? "Prese
   nting":POSITION 26,1:? "a r n i e":? :
   ?
VC 1020 ? " Arnie the alien came to earth
    to learn a few things. Unfortunately,
    he fell"
WF 1030 ? "foul of an evil wizard who loc
   ked him ina magic prison. The only way
    he can get"
WQ 1035 ? "out is by answering some quest
   ions. It  takes 2 correct answers to m
   ake a door  disappear."
BT 1040 ? :? " If you PLAY A GAME you can
    help Arnie  get back to his ship by s
   electing the"
VV 1045 ? "right answer for him. If you M
   AKE A FILEyou can set up a record with
    different"
GC 1050 ? "questions and answers.":POSITI
   ON 10,20:? "Wait a jiffy..."
BQ 1060 NB=152:POKE 106,NB-1:RAMB=NB*256
BP 1080 RESTORE 9000:FOR N=1 TO 34:READ M
   C:MC$(N,N)=CHR$(MC):NEXT N:M=USR(ADR(M
   C$),RAMB)
FB 1090 FOR N=1 TO 12*8:READ DTA:POKE RAM
   B+16-1+N,DTA:POSITION 27,20:? INT(12-N
   /8);" ";:NEXT N
ZI 1100 POSITION 10,20:? "Press  START  t
   o begin":PP=PEEK(755):GOSUB FLSH:POKE
   53279,7:RETURN
GO 1999 REM  PLAY A GAME  2000 >>>
FG 2000 GOSUB SCRN:POSITION 25,1:? "play
   a game":POSITION 0,4:? DA$:? "Move Arn
   ie with the joystick. Bring him"
SV 2010 ? "TOWARDS a door to make a quest
   ion come. Select your answer by pressi
   ng 1 2 or 3"
ST 2020 ? DA$:IF G=0 THEN ? "You must loa
   d a question file first..":? DA$:GOTO
   2080
RK 2030 ? "Use the same question file [Y/
   N]?":? DA$
JU 2040 GET #3,KEY:IF KEY<>78 AND KEY<>89
    THEN 2040
BV 2050 POSITION 35,9:? "NO":IF KEY=89 TH
   EN 2100
LY 2080 LN=2080:TRAP 900:B$="LOADING FROM
   ":GOSUB FNAM:OPEN #1,4,0,FILE$:F=7:GOS
   UB INOUT
TS 2099 REM --- GAME SCREEN ---
GN 2100 GRAPHICS 1:POKE 756,RAMB/256:POKE
    752,1:DL=PEEK(560)+256*PEEK(561):SC=P
   EEK(88)+256*PEEK(89):POKE DL+23,2
AV 2105 POKE 710,0:POKE 711,54:POKE 708,1
   36:POKE 709,28
DJ 2110 COLOR 2:PLOT 0,0:DRAWTO 13,0:DRAW
   TO 13,16:DRAWTO 0,16:DRAWTO 0,0:COLOR
   36:PLOT 12,16:COLOR 2
BJ 2120 FOR N=2 TO 14 STEP 2:PLOT 1,N:DRA
   WTO 12,N:R=INT(RND(0)*10)+2:COLOR 36:P
   LOT R,N:COLOR 2:NEXT N
WB 2125 COLOR 133:PLOT 0,20:DRAWTO 19,20:
   POSITION 15,16:? #6;"% ";CHR$(13);" %"
   :POSITION 15,15
UZ 2130 ? #6;SP2$:POSITION 15,14:? #6;SP1
   $:COUNT=0
EW 2140 X2=1:Y2=1:FOR N=1 TO NQ:F(N)=0:NE
   XT N:W=0:GOTO 2200
FF 2149 REM --- PLAY LOOP ---
AT 2150 S=STICK(0):IF S=15 THEN 2150
YU 2160 X2=X2+(S=7 AND X2<19)-(S=11 AND X
   2>0):Y2=Y2+(S=13 AND Y2<17)-(S=14 AND
   Y2>1)
```

continued

ARNIE

```
PY 2170 POSITION X1,Y1:? #6;BL$(39):IF Y2
    =17 THEN W=1:GOTO 2400
EG 2200 LOCATE X2,Y2,C
SG 2210 IF C=2 OR C=36 THEN SOUND 0,150,1
    0,8:FOR D=1 TO 20:NEXT D:SOUND 0,0,0,0
    :X2=X1:Y2=Y1:IF C=2 THEN 2200
AT 2270 IF C=36 THEN POSITION X1,Y1:? #6;
    CHR$(131):IF COUNT<NQ THEN GOSUB 2300
QN 2290 POSITION X2,Y2:? #6;CHR$(131):X1=
    X2:Y1=Y2:GOTO 2150
HX 2299 REM --- ASK QUESTION ---
JW 2300 Q=INT(RND(0)*NQ+1):IF F(Q)<>0 THE
    N 2300
PL 2305 SC$=Q$(LQ*(Q-1)+1,LQ*Q):P=40:V=12
    :J=1:GOSUB PK
LO 2310 ? " 1. ";:ON RND(0)>0.66 GOTO 232
    0:ON RND(0)<0.33 GOTO 2325
MM 2315 ? W2$(LA*(Q-1)+1,LA*Q):? " 2. ";R
    $(LA*(Q-1)+1,LA*Q):? " 3. ";W1$(LA*(Q-
    1)+1,LA*Q):F(Q)=2:GOTO 2330
NX 2320 ? R$(LA*(Q-1)+1,LA*Q):? " 2. ";W1
    $(LA*(Q-1)+1,LA*Q):? " 3. ";W2$(LA*(Q-
    1)+1,LA*Q):F(Q)=1:GOTO 2330
BN 2325 ? W1$(LA*(Q-1)+1,LA*Q):? " 2. ";W
    2$(LA*(Q-1)+1,LA*Q):? " 3. ";R$(LA*(Q-
    1)+1,LA*Q):F(Q)=3
MB 2330 POKE 764,255:GET #3,K:IF K<49 OR
    K>51 THEN 2330
TU 2335 SC$=BL$:COUNT=COUNT+1:POSITION 20
    -COUNT,20:? #6;BL$(39)
FL 2340 R=K-49:POKE 656,R:? CHR$(62);:IF
    R+1=F(Q) THEN S1=S1+1:P=15:SC$="CORREC
    T!":GOTO 2360
HT 2350 SC$="NO, IT'S ":SC$(10)=R$(LA*(Q-
    1)+1,LA*Q):P=80
FI 2360 SOUND 0,P,10,12:SC$(26)="[ PRESS
    FIRE ]":GOSUB PK:FOR D=1 TO 20:NEXT D:
    SOUND 0,0,0,0:SC$=BL$
YV 2370 IF STRIG(0)<>0 THEN 2370
VS 2380 ? CHR$(125);:GOSUB PK:IF S1=2 THE
    N S1=0:POSITION X1,Y1+1:? #6;BL$(39):R
    ETURN
UN 2390 IF COUNT<NQ THEN 2300
PF 2395 POP :GOTO 2460
QG 2399 REM --- GAME OVER ---
WA 2400 FOR X=12 TO 17:POSITION X,17:? #6
    ;CHR$(131);:SOUND 0,50,10,10:FOR D=1 T
    O 30:NEXT D:POSITION X,17
VR 2410 ? #6;BL$(39);:SOUND 0,0,0,0:NEXT
    X
LH 2420 FOR YY=14 TO 0 STEP -1:POSITION 1
    5,YY:? #6;SP1$:POSITION 15,YY+1:? #6;S
    P2$:POSITION 15,YY+2:? #6;SP3$
DG 2430 FOR D=1 TO 15:NEXT D:POSITION 15,
    YY+2:? #6;BL$(35):POSITION 15,YY+1:? #
    6;BL$(35)
RV 2440 PE=PEEK(708):SOUND 0,YY*6,10,12:P
    OKE 708,PEEK(709):POKE 709,PEEK(710):P
    OKE 710,PE
UL 2450 NEXT YY:POSITION 15,0:? #6;BL$(35
    )
SR 2460 SC$="ARNIE SAYS THANKS A LOT AND
    GOODBYE":IF W<>1 THEN SC$(12)="I'M STU
    CK HERE SO.."
MC 2470 J=1:GOSUB PK:? CHR$(125):POKE 657
    ,6:? "↓PRESS  FIRE  FOR THE MENU"
FZ 2480 PP=PEEK(755):GOSUB FLSH:G=G+1:GOT
    O 100
BS 4999 REM  MAKE A FILE  5000 >>>
ON 5000 GOSUB SCRN:POSITION 25,1:? "make
    a file":POSITION 0,4:? DA$:? "Make a f
    ile of 20 records and save them"
MN 5010 ? "on disk/tape. Select fast mode
     if all   your questions start in the
    same way."
MY 5015 ? DA$:? "Fast or slow mode? [F/S/
    ESC]?":? DA$:FAST=0
IF 5020 GET #3,KEY:IF KEY<>70 AND KEY<>83
     AND KEY<>27 THEN 5020
PO 5025 IF KEY=27 THEN 100
YJ 5040 Q$(1)=" ":Q$(NQ*LQ)=" ":Q$(2)=Q$:
    R$=Q$:W1$=Q$:W2$=Q$:Q1$=Q$:IF KEY=83 T
    HEN 5200
JD 5050 POSITION 30,9:? "FAST":POSITION 0
    ,16:? "Input the common phrase [max 25
     chars]:":? :INPUT #16;Q1$
QL 5055 IF Q1$="" OR LEN(Q1$)>25 THEN POS
    ITION 0,18:? "↑";BL$;BL$:GOTO 5050
MK 5060 Q1$(LEN(Q1$)+1)=" ":GOSUB BLNK:FA
    ST=1
BX 5200 ? CHR$(125);"RECORD NUMBER: ":? D
    A$(20):IF FAST=1 THEN ? Q1$
IM 5210 POSITION 0,15:? DA$:FOR N=1 TO NQ
    :POSITION 15,0:? N
OU 5220 POSITION 0,16:? "INPUT THE QUESTI
    ON:":? :INPUT #16;A$:IF A$="" THEN 522
    0
FC 5230 POSITION 0,4:? A$:GOSUB BLNK:? "C
    ORRECT ANSWER: ";:INPUT B$:IF B$="" TH
    EN 5230
KR 5260 POSITION 0,6:? "RIGHT ANSWER: ";B
    $:GOSUB BLNK:? "FIRST WRONG ANSWER: ";
    :INPUT C$:IF C$="" THEN 5260
CJ 5270 POSITION 0,8:? "WRONG ANSWER: ";C
    $:GOSUB BLNK:? "SECOND WRONG ANSWER: "
    ;:INPUT D$:IF D$="" THEN 5270
JK 5280 POSITION 0,10:? "WRONG ANSWER: ";
    D$:GOSUB BLNK:? "ARE YOU HAPPY WITH TH
    IS RECORD [Y/N]?"
CK 5290 GET #3,KEY:IF KEY<>78 AND KEY<>89
     THEN 5290
NU 5300 GOSUB BLNK:FOR Y=4 TO 10 STEP 2:P
    OSITION 0,Y:? BL$:NEXT Y:POSITION 0,16
    :? BL$
SV 5310 IF KEY=78 THEN FOR D=1 TO 25:SOUN
    D 0,50,10,12:NEXT D:SOUND 0,0,0,0:GOTO
     5220
KP 5320 IF FAST=1 THEN Q2$=Q1$:Q1$(LEN(Q1
    $)+1)=A$:A$=Q1$:Q1$=Q2$
FF 5330 GOSUB DAT:FOR D=1 TO 15:SOUND 0,2
    0,10,12:NEXT D:SOUND 0,0,0,0:NEXT N
ZG 5400 ? CHR$(125);:POSITION 24,1:? "sav
    e a file":POSITION 0,4:? DA$
OE 5410 POSITION 5,5:? "Now let's save th
    ese records":? DA$
NG 5420 B$="SAVING ON":LN=5400:TRAP 900:G
    OSUB FNAM:OPEN #1,8,0,FILE$:F=11:GOSUB
     INOUT:GOTO 100
FY 7999 REM  END PROGRAM  8000 >>>
HY 8000 GRAPHICS 0:POKE 752,0:POKE 82,2:E
    ND
CS 8999 REM  M/C FROM PAGE 6 NO. 35.
RA 9000 DATA 104,104,133,207,104,133,206,
    169,0,133,204,169,224,133,205,162,4,16
    0,0,177
LT 9010 DATA 204,145,206,136,208,249,230,
    205,230,207,202,208,242,96
SN 9019 REM  NEW CHARACTERS
DX 9040 DATA 255,255,136,255,34,255,136,2
    55
DM 9050 DATA 24,255,219,255,195,255,36,23
    1
GJ 9060 DATA 0,0,255,255,243,243,255,255
UK 9070 DATA 126,126,24,24,24,24,126,126
YV 9080 DATA 255,255,195,195,195,195,255,
    255
DS 9090 DATA 0,24,24,24,0,0,0,0
SL 9100 DATA 255,132,181,181,132,181,181,
    255
SS 9110 DATA 255,48,182,182,22,214,214,25
    5
BO 9120 DATA 255,255,145,40,28,52,164,164
XX 9130 DATA 255,243,251,251,251,251,177,
    255
QZ 9140 DATA 0,0,0,0,0,24,24,48
RO 9150 DATA 126,66,126,66,126,66,126,66
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FOR SALE

1029 PRINTER: Excellent condition with ribbons, loads of paper and Font IV chip installed. All fully boxed with manual, £90. Phone Darren: 081 534 3013

VARIOUS 8-BIT: 800XL keyboard (faulty), remote control joystick, 1010 tape, 1027 printer (needs attention), full instructions, accessories included, over 50 tape games, Midnight Magic ROM, £90 o.n.o. or will swap for 1029 printer (working). Phone 0782 658708

65XE: Computer with Data Recorder, 1050 disk drive, over £250 worth of magazines and software, selling for £200. Buyer must collect. Contact Glenn on 081 804 7020 after 7 pm.

ATARI 130XE: 1027 printer, 1050 disk drive, 1010 data recorder, touch tablet, Quick Shot II joystick, many items of software plus DOS and 90 blank disks. Tel 0533 663216 (11 am. to 4 pm.)

XE SYSTEM: 130XE, 1050 disk drive, 1029 printer, joystick, trackball, 800 48k system, 810 disk drive, joystick, cartridges, leads, manuals, software and books for both. £400 the lot or will split by system. Tel Reading (0734) 340993 evenings

XE GAMES SYSTEM: 65XE, defunct 800 XL, 1050 drive, 1029 printer, light gun, SpartaDos X (ROM), DOS 2.5/3.0/4.0, U.S. Doubler, software inc. MO2, TP, Starquake, Mercenary, FS2 on ROM, many others, mags, all with instructions. £300 the lot. Phone Andy on (0582) 37603, evenings

800SYSTEM: Atari 800 with 410 and 1050 drive (US Doubler) and 850 interface and over 150 disks. £230 o.n.o. Call 021 440 4623

130XE SYSTEM: with 1050 fitted with Doubler and W/P switch also Brother HR5 printer with interface, lots of disks, two disk boxes, joysticks, books and mags. £350 o.n.o. Andy 061 793 7705

LIGHTGUN: With Bug Hunt cartridge used only once, £25. Please contact Richard on 030678 327 (after 6 pm.)

MAGAZINES: All PAGE 6 magazines (44), first issue to latest, plus all Atari User magazines (43) up to last one published. Highest offer secures. Write to George at 29 Longhouse Lane, Poulton, Nr. Blackpool, Lancs. FY6 8DE

XL SYSTEM: 800XL computer, 1010 tape recorder (missing pause button), 1050 disk drive with IS Plate enhancer, touch tablet, 2 joysticks, computer desk, over 150 disks and cassettes, Atari User magazines issues 1 to 44 (NEW ATARI USER). Sell for £320 o.n.o. Tel. Jonathon on Alton (0420) 86895 after 5.30 pm.

BOOKS: De Re Atari, £10. The Creative Atari, £5. Tech. Ref. Notes, £10. Atari Basic, £5. Mapping The Atari (revised), £10. Atari Games and Recreations, £5. Buyer pays postage. Phone George on Blackpool (0253) 891819

ODDS AND ENDS: Paperbacks for Atari 600/800XL, some PAGE 6 PD disks, 800XL power unit and modulator, Ferguson MC01 composite video lead, every ATARI USER since December 1985, 5.25" disks. Offers? Tel. Michael Newman (0245) 268063

ATARI 800: 64k plus 410 cassette and 1050 drive (US Doubler) and 850 interface plus 150 disks and manuals. Offers please! Call 021 440 4623

XL SYSTEM: 800XL and XFF551 disk drive used only for testing an abandoned hardware project. All boxed with all manuals, £135 ovno. Please write: Fred Southwell, 40, Downsview, Smalldole, West Sussex

65XE COMPUTER: With XC12 datacorder, joystick and over £50 worth of software. Still with original box. Offers around £100 please. Write to Karl Thwaites, 29, Alder Hey Road, St. Helens, Merseyside

PRINTER/PLOTTER: 1020 model in excellent condition with spare colour pens and paper rolls. In original packing, £50. Tel. 021 360 3319 (Birmingham) and ask for Martin

XL SYSTEM: 800XL, XC data recorder, over £150 worth of software plus lots of magazines, £80. Tel. Plymouth (0752) 558367 after 4 pm.

XL SYSTEM: 800XL, 1050 disk drive, 1010 recorder and software, £120. Graphix AT printer interface, £15. ATARI USER, May '85 to July '90 (51 issues), £15. Ring 0634 (Medway) 666009

XE SYSTEM: 130XE, 1050 disk drive with ISP Plate, 1020 printer, 410 recorder. Total system with loads of games, trackball, joysticks, etc. well over £1,000 of equipment, pull out desk and 20" colour TV included. Price £399. Phone (0636) 525284 for further details

XL SYSTEM: 800XL, 1050 tape deck, 1029 printer, joysticks, all Atari User mags from Issue 1 to date. Plenty of software. PC forces sale! £225.00. Phone 0702 552603 (evenings)

XE SYSTEM: 130XE, 810 drive, XC12 tape deck, 1029 printer all boxed. Over 200 items of software on disk, tape and ROM plus disk storage box. Tel. (0254) 240649

1010 RECORDER: For Sale, £10. AtariWriter Plus, Autoduel, Silent Service, Solo Flight, Spy Hunter, Jewels of Darkness and others on disk, Kenny Dalglish, Decathlon, Kickstart and others on tape. Phone Stephen 0243 373695

XE SYSTEM: 130XE, 1050 disk drive, 1010 data recorder, 1027 printer (tempremental), spare 800XL, lots of software, £175. Might split. Phone Bures (0787) 227 907

SCANNER: Signa Colibri Hand Scanner (400 dpi/32 grey scales) with Angur Optical Character Recognition and software. 12 months old, perfect condition. New price, £616. Accept £395. Tel. R. Matheson 07715 716

XE SYSTEM: 65XE, XC12 data recorder, joystick, over £300 worth of games, tapes and ROM cartridges. Fully boxed with manual and some copies of Atari User. Nearly new, hardly used. £130 o.n.o. Phone Craig on (061) 876 0082 after 4 pm.

XL SYSTEM: 800XL with 1010 tape recorder and joystick, over 23 games, TV adaptor, only £50. Ring (0865) 883402

XE SYSTEM: 1050 drive, 1010 recorder (no keys), 1027 (faulty), disk software, tape software, ROMs, 31 blank disks, lots of stuff, £299 the lot or phone (0782) 658708 for prices. Buyer collects or £4.50 p&p. Ask for Peter

1029 PRINTER: For sale, excellent condition with ribbon, demos, loads of paper and FONT IV chip fitted. All boxed with manual, £90. Phone Darren on 081 534 3013

SALE: Changing over to the ST everything must go, 1050 disk drive to disks, cassette recorder to cassettes, 850 interface, 810 disk drive, old 800 computer (needs attention), any offers? Ring Jim, Wigan 0942 493660

XE SYSTEM: 130XE with Omnimon 1050 with warp board and write protect, XC12, touch tablet, books, manuals, all Atari User mags, £250 software, lots of disks. Sell for £200. Tel. 0506 39722

XL SYSTEM: 800XL, 1050 disk drive, 1029 printer, dust covers, AtariWriter Plus, Action (cartridge and book), Atari Microsoft Basic, all manuals, books (Mapping The Atari, Atari Graphics), 25 PAGE 6 Issue disks and magazines, over 50 blanks and games disks, touch tablet and Atari Artist, £200. Tel. 071 730 5137 after 7 pm.

XL SYSTEM: 800XL, 1010 tape recorder, manuals, cartridges (LOGO, Pole Position, 747 Flight Simulator) programs and audio materials (Invitation to Programming 2 and 3), Touch Typing and games, £50. Tel. 071 730 5137 after 7 pm.

PRINTERS AND XL: 1029 dot matrix and 1027 LQ printer, £60 each. 800XL computer with joystick and cartridge software, £50. Phone Ray on Reigate (0737) 241832, evenings

BOOKS: Beginner to advanced inc. Tech. Ref. Notes, £5; Atari Basic Source, £5; Computer Animation Primer, £8. SAE for full list or tel. 0793 750620, Rob Breeds, 17, Pittsfield, Cricklade, Swindon SN6 6AN

XE SYSTEM: 65XE, XC12 data recorder, joystick with 60+ games worth over £200 plus books and magazines. All for £60 or lower. Buyer must collect if possible. Will split. Phone Boris on 0268 747565 after 5 pm.

8-BIT BARGAINS: 810 disk drive with Archiver chip, £40. 850 interface, £30. Touch Tablet and Artist cartridge, £15. Atariwriter/ Music Composer (cartridges)/ Macro Assembler (disk)/ Quickshot Turbo joystick/ Atari Paddles - all at £5 each! Tel. (0242) 510434

XL SYSTEM: 800XL, 1050 drive, 1010 cassette with Rambit conversion, many games converted load in seconds rather than minutes, games utilities on disk, 30 Atari Users, £260. Tel John 0903 815240

HAPPY XL SYSTEM: 800XL, 1050 disk drive with Happy enhancer installed, 1010 recorder, 2 joysticks, 120 disks, mouse and extras. £200 o.n.o. Tel. 0782 312662

SELL/SWAP: C64, 1541 D/D, MPS 801 printer, CN2, Dragon 432 + recorder, manuals, Panasonic 688 video, Eumig Projector, other items. Need Atari 1050 disk drive, A or 2002 scanner or w.h.y. No callers. Letters only to Hamilton, 26 Belvedere Place, Dublin 1, Eire

WANTED

BOOK: Revised Mapping The Atari, must be in good condition. Will pay up to £17. Write to Trystan Negus, 23 Newbridge Way, Truro, Cornwall TR1 3LX

1050 DRIVE: Will exchange for Scalectric Metro Turbo Race Track (boxed). Disk must be in good condition with manuals. Contact Graham Storar on 0560 83806

DAMAGED ITEMS: Cheap damaged 1050 or 800XL for spares/ repair. Phil Cooper 0302 504108 evenings, 081 666 6805 daytime, 00-66805 railway. Also contact with serious 8-bit users, Eastborne, Croydon or British Rail

800: Old 800 required (not 800XL). Good price paid according to condition. Any RAM size okay. Must be in good condition with no faults. Please contact Robert on Bristol (0272) 677237, Friday/Sundays or any evening until 11 pm!

PHOTOCOPIES: Could anyone send me photocopies of DISPLAY LISTS part 1 and 2 from Issues 18 and 19 of PAGE 6? Please send to Mr. P. Adams, 29 Marlcliff Grove, Billesley, Birmingham B13 0RP

ATARI HARDWARE: Any faulty hardware welcome, especially disk drives. Up to £20 plus p&p will be paid. Contact Mike on 0734 833006 (answerphone) or write to 98 Hunters Hill, Burghfield Comm. Reading, Berks RG7 3HN

1029 PRINTER: Required with all leads and manuals, must be in Greater Manchester area. Ring Anthony on (061) 248 7893

ADVENTURES: Alternate Reality The Dungeon or Ultima III or IV. Please help a fellow adventurer. I will pay well. Phone Julian, Worthing (0903) 506866

MANUAL: Operating manual for the Atari 65XE, XC12 tape deck. Can anyone help? Was not supplied when purchased and I am having difficulty in learning machine. Used copy accepted. Contact Mrs P. McNab, 132 Forest Road, New Ollerton, Notts, NG22 9QS

PRINTER: 1027 or 1029 printer wanted. Kent or Hertfordshire areas. Phone (0892) 22036

130XE: Can anyone help? I'm after a working 130XE only, no games, so I don't have to fight the children for theirs. Write to Mr. P. Adams, 29 Marlcliff Grove, Billesley, Birmingham B13 0RP

LEADERBOARD: Copy of Leaderboard for XE, disk or cassette wanted. Have tried U.S. Gold but they don't want to know. Tel. 0463 793289 (evenings)

DATA RECORDER: Must be in fully working order for XE games system, £35 max. Seller must deliver. Contact Darren P. Chenery, 24, Moore Park, Hailsham, East Sussex BN27 2LJ

DISK DRIVE: 1050 must be mint also rare games, Gyruss, Ultima IV, Gremlins, Karateka, Aquatron, Sentinel, Raid Over Moscow, Universe. Phone Paul on (0207) 237688 (after 6 pm.)

LOCO: Has anyone got this game by Alligata Software that they are willing to sell for under £2. If so contact Steven 0423 869127

HAMTEXT: Can anyone let me have a copy of the Hamtext program for RTTY - C.W. - ASCII? Mine has got corrupted. Disk supplied. Ring Harry on 0787 473136

TANK COMMANDER: Has anyone got a copy of this game on cassette they are willing to sell me. Contact Tony on 0293 774955

WARGAMES: Strategy wargames by SSI. Disk only, fair price paid for games such as Broadsides, Computer Ambush, Kampfgruppe etc. Must have rules. Write to S. Brett, 40 Sharples Road, Watsonia, Victoria 3087, Australia

MISS PACMAN: Has anyone got a copy of this game on ROM who would be willing to sell it to me for £7.50 inc. postage? Tel. Liverpool (051) 922 6664 ask for Paul

HANDBOOK: Who's got the handbook for the 800XL, photocopy or original accepted. I'm willing to pay shipping costs. Arnold Bontsema, Wibenaheerd 366, 9736 nd, Groningen, Holland

DISK DRIVE: Wanted 1050 disk drive for student on E.T. Must be in good working order and around £50. Phone Paul on 0533 356587 (evenings) or write 21, Modbury Avenue, Leicester LE4 2PY

VOICE BOX II: Need disk software for this, cannot locate suppliers. Will pay for back up. Lost original disks some years back. Contact A.E. Raper, 17, Edgecome Grove, Darlington, Co. Durham. Tel. 0325 352805

CASSETTE DECK: Wanted 1010 cassette recorder with leads, will pay £20. Contact M. McGinlay, 121 Berneray St. Glasgow or phone 041 772 4458

MORE OVERLEAF ☛

FOR SALE ... WANTED ... PEN PALS ... ADVICE ... HELP ...

contact extra ... contact extra ...

PRINTSHOP: Has anybody got a copy with documentation for sale? Please write to D. Fogerty, 15, St. Martins Close, Barford-St-Martin, Salisbury SP3 4AX or phone (0722) 744162

SSI GAMES: Anyone willing to sell the following SSI games: Shiloh, Mech Brigade, Sons of Liberty, Chickamauga. Also consider other SSI wargames. Tel. (0793) 511360 (evenings) or write to Pat McNamee, 12 Roundway Down, Swindon SN5 8NT

DISK DRIVE: Wanted from anyone in Essex (unless willing to deliver), 1050 disk drive in good condition. Will pay up to £50. Phone Steve between 6 pm and 7 pm - 0268 758052

1040STFM: Wanted, STFM only, no software required. Also require cheap dot matrix printer to go with it, must be in good order. Phone Andy on (0582) 37603 (evenings)

PLOTTER PENS: Can anyone give me the names and addresses of suppliers of plotter pens for the 1020? Write to Michael Flanagan, 34E St. Chads Fields, Swanlow Drive, Winsford, Cheshire CW7 1LQ

PRINTER INTERFACE: To connect from a FACIT 4010 printer to an Atari XL computer. Good price paid. Phone Darren 081 534 3013

XE/XL SYSTEM: 800XL or 130XE with 1050 or XF551 disk drive. Will pay reasonable price. Write giving details to D. Hutchinson, 6, Lime Tree Grove, Selby, N. Yorkshire YO8 0XT. All letters answered.

CONTACT

PENPALS: Calling all 8-bit users. My name is Mark and I own an 800XL, 1050 disk drive and XC12 tape and would like penpals to swap hints, tips etc. with. All letters answered, so don't delay, write today to M. Smith, 133, Andover Road, Bestwood, Notts NG5 5FD

HELP LINE: Got a game too hard? Why don't you drop me a line. I've tips and cheats and maps for most games and adventures. Write to 138 Townsfield Road, Westhoughton, Nr. Bolton BL5 2NT. Tel 840725 any time and ask for Dean

XL/XE PENPALS: Hello! I would like to hear from any 8-bit users who are interested in all types of software, adventures, arcade games etc. Write to Geraldine Kinane, Teampall Nua, Templenoe, Greenane, Tipperary Town, Republic of Ireland

PENPALS: I have a 130XE and tape deck and want to swap hints and games with anybody in Ireland. contact Liam Dillon, 6, Ceanncora Lawn, Boreenmanna Road, Cork

65XE PENPALS: I'm 21 and my son is 2 and we'd like to hear from anyone with any hints or tips for games or anything educational. All letters answered. Any help appreciated. Please write to Sara, 70 Cash's Lane, Foleshill, Coventry CV1 4DT

8-BIT USERS: I am Gary Smith, age 10. I own a 800XL and 1010 recorder. Could someone be my penpal to swap advice, hints and tips. Please write to Gary Smith, 51 Bearsdown Road, Eggbuckland, Plymouth, Devon PL6 5TR

DUTCH PENPAL: Arnold is looking for somebody to swap listings and games with, he's got a few games (10). Software for the XL is hard to get in Holland you know! Games on tape! Anyone interested? Write to Arnold Bontsema, Wibenaheerd 366, 9736 nd, Groningen, Holland

TURKISH PENPAL: Hello friends! I am Umut Oguz Celeni, a 17 year old Atari user. I am interested in Assembly language, Basic, simulations, adventures, shoot-em-ups and utilities. If you want to have a good contact write to me at Sarayardi.Cad, Emek Apt. D:6, K:3, Acibadem, Istanbul, Turkey

HELP WANTED: Have just got a 130XE and need help in programming etc. Write to Geraldine Kinane, Teampall Nua, Templenoe, Greenane, Tipperary Town, Republic of Ireland

XL/XE USERS: Male or female computer enthusiasts to swap games, hints, help with various adventure games. Please write to me. Eve Jordan, 4 East Avenue, Exeter, Devon, EX1 2DY

SOVIET-BRITISH LINK: I have an Atari 65XE used in a Youth Centre in Irkutsk, Eastern Siberia and would like to contact people who could help to make educational computer programs for teaching English as a second language (ESL). Please write to Michael Dvoryadkin, Krasnokasachya Street 2-24, 664007 Irkutsk, USSR

NEW USER GROUP: I am forming a new 8-bit user group. We have a bi-monthly newsletter containing news, reviews, programs and loads of other features. We also have a small PD library. Please write to Atari Addition, 1 Broadmeadow Green, Stowlawn, Bilston, West Midlands, WV14 3EG

OVERSEAS PENPAL: I would like a penpal from another country. I own a 65XE, XC12 tape deck and 70 odd games. I am 11 years old, I like typing in programs, playing games (only ones I can win), I would like to swap games, tips etc. C.J. George, 19 Main Road, Hambleton, North Yorkshire, Nr. Selby, YO8 9HN

NEW 8-BIT USER GROUP: In the South. Monthly newsletter, tips, info, help, services, listings put to tape or disk cheaply. Some software and second hand hardware. Suggestions welcome. Call XL/XE ALIVE on 0784 255894

SWEDISH PENPAL: My name is Tobias and I am 14 years old. I have a 130XE with XC12 tape unit. I would like to swap hints, tips and games with any 8-bit user around the world. All letters answered. Write to Tobias Jorborn, Ljungvagen 99, 19460 Upplands, Vasby, Sweden

PENPALS: Hi! Rob calling from Bristol to all 8-bit users. I have an 800XL with two 1050 disk drives (one with Doubler). I would like to hear from anybody who'd like to swap hints, tips and programs. My musical taste covers Rock to Classical. Overseas welcome!. Please contact Robert Fry, 44, Staplegrove Crescent, St. George, Bristol BS5 8QW

VENEZUALA HOLIDAY!!: We need to contact persons and user groups all world over, software we make ourselves in Spanish and English for our ST and 800XL, all public domain and we buy more than 400 software items in USA, UK and other countries. I am manager of User Group Atari Venezuela too. We offer to any Atari User writing to me who wants to come to Venezuela to know our country everything free, you are welcome and only have to pay your flight. Please write to Jose Mendoza, P.O. BOX 16311, Candelaria, Caracas, Venezuela.
If anyone takes up this offer (it is genuine) we would love to know. Ed.

CONTACT is FREE of charge and may be used by any genuine Atari enthusiast for contacting other owners. Any notice may be included except those offering software only for sale or exchange or those offering items for sale commercially. The Editor reserves the right to omit any notice received at his discresion.
Send your CONTACT notice to CONTACT, PAGE 6, P.O. Box 54, Stafford, ST16 1DR. Please write your notice on a separate sheet of paper, not as part of a letter.

FOR SALE ... WANTED ... PEN PALS ... ADVICE ... HELP ...

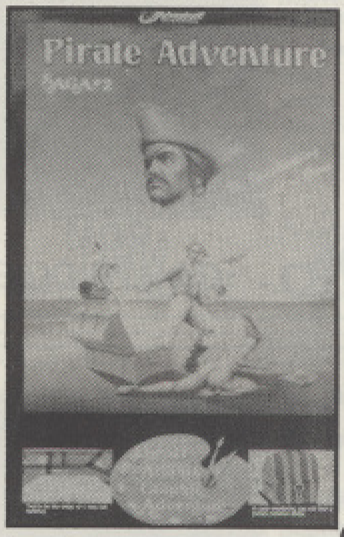
THE ACCESSORY SHOP
ISSUE 46

Welcome once again to the Accessory Shop where you can find lots of bargain programs to keep your XL or XE happy. This issue we have some excellent graphic adventures from Scott Adams - again programs that have not been on sale for many years and that will most probably be exciting discoveries for many new owners. We also have continuing supplies of most of the Atari ROMS and disks introduced last issue - your chance to get some serious program or have fun at a fraction of the original price.

Let's Get Adventurous

NEW SOFTWARE!

PIRATE ADVENTURE



"Yo ho ho and a bottle of rum...". You'll meet up with the pirate and his daffy bird along with many strange sights as you attempt to go from your London flat to Treasure Island. Can you recover Long John Silver's lost treasures? Happy sailing matey.

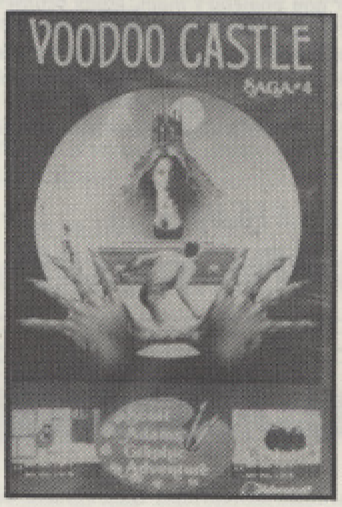
Scott Adams Graphic Adventure #2 brings you a superb Beginner's level adventure complete with graphics and ideal for all ages

DISK ONLY

Original price £19.95

OUR PRICE £7.95

VOODOO CASTLE



The Count of Monte Cristo reposes in a coffin in his musty castle, awaiting an able assist from you to remove the curse that binds him to non-life. Is he down for the Count for good, or can you help? Gather your rabbit's foot, archane charms and courage, Good Sir or Madam, and prepare to step through the portal of Voodoo castle!

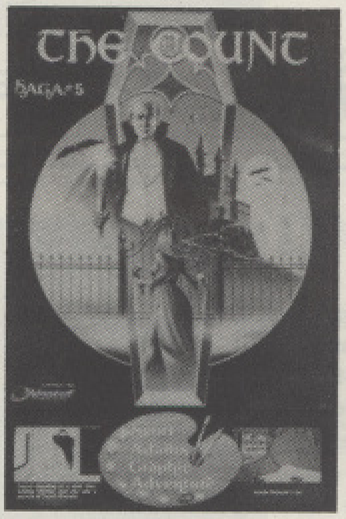
Scott Adams Graphic Adventure #4 is a Moderate level adventure complete with graphics and ideal for those who have had some experience.

DISK ONLY

Original price £19.95

OUR PRICE £7.95

THE COUNT



When's the last time you awoke in an antique brass bed in a dank, desolate castle? If your answer is "never" you've come to the right place! This marvellous Gothic, er ... Graphic Adventure will escort you into the weirdling world of a certain well-known Transylvanian count. Shivering has never been so much fun!

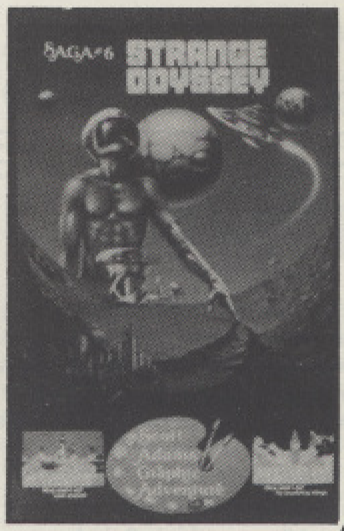
Scott Adams Graphic Adventure #5 is a Moderate level adventure complete with graphics and ideal for those who have had a little experience.

DISK ONLY

Original price £19.95

OUR PRICE £7.95

STRANGE ODYSSEY



At the galaxy's rim, there are rewards aplenty to be harvested from a long-dead alien civilization. Fabulous treasures ... advanced technologies far beyond human ken ... All this and more awaits the brave galactic Adventurer. But will you be able to recover the wealth and return home? Prepare yourself for a Strange Odyssey!

Scott Adams Graphic Adventure #6 is a Moderate level adventure complete with graphics and ideal for those who have had a little experience.

DISK ONLY

Original price £19.95

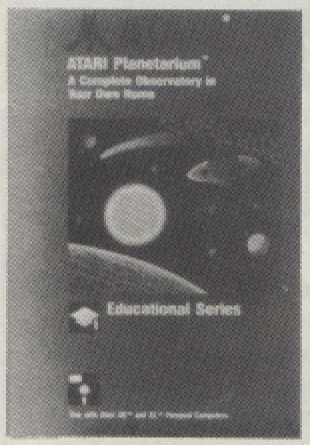
OUR PRICE £7.95

POSSIBLY THE LAST TIME THESE FAMOUS ADVENTURES WILL BE OFFERED FOR SALE!

Let's Have Fun!

Atari have had some real classic arcade games and originals either written themselves or specially commissioned. Some of these titles have not been available for some time and all are top quality programs to bring you fun and excitement with your Atari.

ALL ROM CARTRIDGES WILL PLAY ON ANY XL/XE SYSTEM INCLUDING THE XE GAMES SYSTEM



DISK ONLY
requires 1050 drive

PLANETARIUM

Fun or education? Both really in this fascinating look at the heavens. Over 1200 stars, 88 constellations, the solar system and more than 300 deep-sky objects are depicted in this program that allows you to view the universe. You can make stellar and planetary maps, study eclipses, learn about latitude and longitude, sunrise and sunset against latitude and season and determine navigational position from celestial observations. You'll learn a great deal and you'll have fun while doing it. Includes an excellent manual and guide.

Normally £16.95.

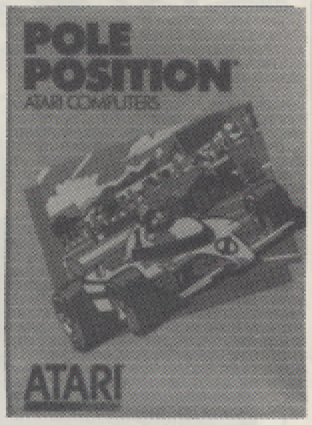
OUR PRICE £6.95

POLE POSITION

The ultra-realistic graphics and sounds of the Grand Prix explode into your living room in this computer version of the classic arcade hit. Complete a lap in qualifying time, then take on the Fuji raceway and competing drivers in a high speed race. One of the all time classics.

Normally £12.95.

OUR PRICE £6.95



ROM CARTRIDGE



ROM CARTRIDGE

GALAXIAN

Another arcade conversion that retains all of the addictiveness of the original and still stands as one of the all time classics. Blast the galaxians as they advance in formation and peel off to attack. With one or two players and 10 skill levels you'll be entertained for a long time. Includes an easy option for beginners.

Normally £12.95.

OUR PRICE £6.95

PACMAN

Surely one of the best known games? Guide your happy little Pacman through the maze gobbling up dots and fruits while avoiding the ghosts. Gain a bonus PacMan every 10,000 points as you rack up the score. Simple, colourful, addictive and compelling. A classic game.

Normally £12.95.

OUR PRICE £6.95



ROM CARTRIDGE



ROM CARTRIDGE

U.S. FOOTBALL

American Football is now a big craze in this country and you can now play at home. Outsmart the defence, pass with amazing accuracy, run with speed and agility, make tackles, select offensive and defensive plays and more. You can take on the computer in a practice game or challenge a friend to a dramatic video bowl game of your own in a packed stadium. All the thrills of the gridiron - without all the bumps and bruises.

Normally £12.95.

OUR PRICE £6.95

JOUST

Don your helmet and hoist your lance and climb aboard an ostrich in this unusual arcade game! Do battle with the evil Buzzard Riders in deep space. Pterodactyls to the right of you, alien eggs to the left, you must learn to fly so that you won't die so very far from home. All the arcade thrills for one or two players.

Normally £12.95.

OUR PRICE £6.95



ROM CARTRIDGE

RESCUE ON FRACTALUS



Ask old hands what was one of the best games ever for the Atari and a good proportion of them will say Rescue on Fractalus. This game from Lucasfilm set new standards in computer games combining a space flight simulator with a rescue mission. Super, ever changing, 3-D scenery as you fly through the mountains to land on the planet and rescue stranded pilots. It's tough and as you get better it gets tougher, but what a thrill to master. See for yourself why many consider this to be the best game of all time.

ROM CARTRIDGE

Normally £14.95

OUR PRICE £6.95

BALLBLAZER

Another from Lucasfilm, this top quality split screen game takes place in a games arena of the future. You are strapped into a Rotofoil hovercraft-like vehicle that skims over the surface of the playfield at 50 metres per second. The object is simple, just release your Plasmorb through your opponent's goal - but it takes a great deal of skill and timing! Ballblazer features two-player simultaneous play with first person perspective for both players. One of the finest two player games ever.

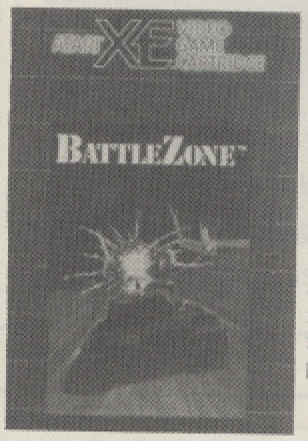


Normally £14.95

OUR PRICE £6.95

ROM CARTRIDGE

BATTLEZONE



Another cracking arcade conversion that set new standards. You command a tank on the battlefield under attack from enemy tanks and flying saucers. You can manoeuvre through 360 degrees as the enemy attacks from all directions. Watch your radar, turn and blast as the enemy approaches at speed. A direct hit will see the enemy tanks and saucers explode into fragments, but if they fire first, you'll have to outmanoeuvre them. It takes nerves of steel. One player, five skill levels.

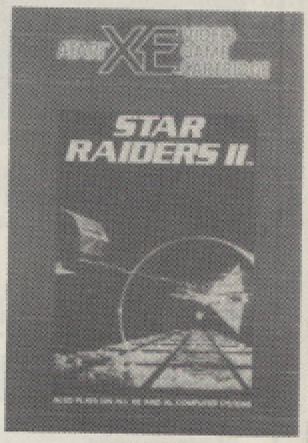
ROM CARTRIDGE

Normally £14.95

OUR PRICE £6.95

STAR RAIDERS 2

The original Star Raiders is updated with better graphics and sound in this all action space drama in which you must track down enemy craft using your long range scanner and radar. Your job is to clear each sector whilst ensuring that the enemy do not overrun planets in another part of the galaxy. It will take skill in deciding which sector to warp to, can you afford to clear a sector or will you have to leave to defend a planet and return later! Make sure your craft is in good condition and properly fuelled at all times. A great follow up to an all time classic.



Normally £14.95

OUR PRICE £6.95

ROM CARTRIDGE

LODE RUNNER



Another classic, perhaps the best of all platform games. You are a highly trained Galactic commando deep in enemy territory. Your mission is to infiltrate all 75 of the enemy's subterranean levels to recover every last piece of gold. You are equipped with a laser drill pistol but you'll need more than that, you need cunning, speed and agility. Lode Runner includes a unique extra that allows you to create your own levels so that the game can go on forever. One of the best.

ROM CARTRIDGE

Normally £14.95

OUR PRICE £6.95

MIDNIGHT MAGIC

Pinball on your Atari can become totally addictive as thousands on addicts to the famous Pinball Construction Set will testify. Now you can join in the fun with David's Midnight Magic, all the thrill of the pinball table on your screen. There are flippers, bumpers, drop targets and you can even 'shake' the machine. Watch you don't tilt it! All of the action, sounds, thrills of real arcade pinball for up to four players.

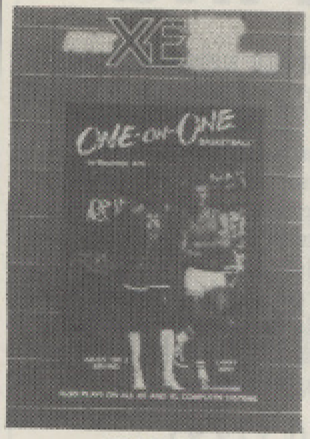


Normal price £14.95

OUR PRICE £6.95

ROM CARTRIDGE

ONE ON ONE



Play basketball with two of America's top players in this great sports simulation which features realistic offensive and defensive moves, fatigue factors, hot streaks, a shot clock, even instant repay and a shattering backboard! Like the game of basketball itself, One-on-One rewards you for playing with your head as well as your hands. Master the joystick moves, sharpen your timing and hone your reflexes. Jump! Shoot! Score!

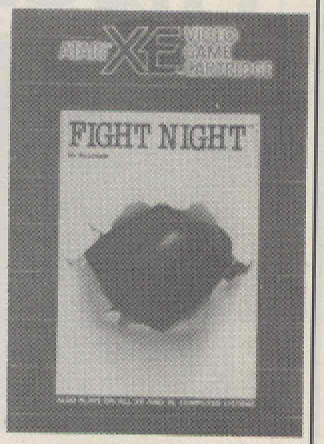
ROM CARTRIDGE

Normally £14.95

OUR PRICE £6.95

FIGHT NIGHT

Fight Night brings you all the thrills of the boxing ring as you face five of the most brutal fighters ever. Its five separate battles are total war with relentless action. The Boxing Construction Set allows you and your opponent to create your own perfect boxers, selecting stamina, intellect and style. Train, spar and step into the ring to pit your perfect boxer against the computer or another opponent. For one or two players.



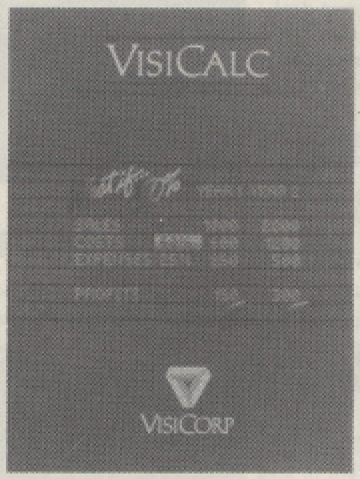
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The world famous Visicalc spreadsheet available for your Atari. Visicalc will take care of all of your spreadsheet requirements with all the arithmetical functions you could want on a spreadsheet that is 63 columns wide by 254 rows deep. All major spreadsheet functions are supported and the program even allows split viewing windows.

Visicalc must be one of the finest products ever produced for the Atari and comes complete with superb tutorial and quick reference guide. Believe it or not the original price for this package was £159.95!

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This is one of the most professionally produced packages we have ever seen for the Atari

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Why not use your Atari as an electronic diary? Timewise allows you to keep track of all your appointments and important dates on a daily, monthly or yearly basis. Now you can dispense with your diary and let your Atari do the work. If you have a printer Timewise allows you to print out the information in a variety of ways.

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A very practical program that will make your Atari even more useful

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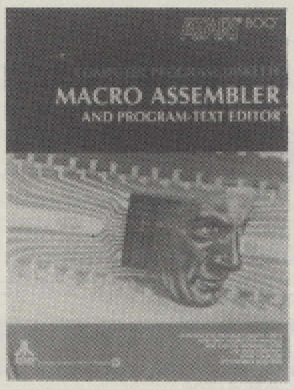
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The Macro Assembler will allow you to create your own machine language games and applications five times faster than with the Assembler Editor cartridge and it can assemble as many as 1600 symbol definitions with no limit on program size. You can duplicate code, optionally assemble code and modularise your program. You can define symbols and macros in a library file and access them allowing you to create modules that can be used time and time again. The Program-Text Editor included has all of the features of a word processor enabling you to write your programs much more conveniently. Unleash the power of your Atari with Assembly Language programs. Includes two reference manuals and a quick reference card.

DISK ONLY

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Why would you want a Basic Cartridge when Basic is already built in to your machine? Well some programs, especially some early public domain programs won't run on the XL/XE but they will if you plug in the old version of Basic. Much more convenient than having to boot in the old Basic from disk and, at this price, worth having just as a backup. We will not be having more stocks of this item so now is the time to buy.

ROM CARTRIDGE

OUR PRICE £3.95

EASY PROGRAMMING FOR YOUR ATARI MICRO



This book went out of print 3 years ago and we have been searching for a replacement ever since. We are absolutely delighted to have found more stocks of one of the best beginner's books ever published. Over the past couple of years whenever someone has phoned for a beginners book on programming we have advised then to try and find a second hand copy of this book - now you can buy it once again, brand new! By the end of this book you'll be writing your own programs, including those with full graphics and sound.

OUR PRICE £5.95

ATARI BASIC



SOLD OUT

A self teaching guide to programming in Basic that includes dozens of lessons and self tests. If you want to learn Atari Basic properly, step by step, rather than just playing about with programs, this tutorial approach is the way to do it. You'll pick up a full understanding of such things as Read and Data, If-then statements, For-Next loops, subscripted variables, arrays, string variables and more. The approach is somewhat academic but if you work through the book you will not only be able to write programs, you'll understand exactly what you are doing and that is fundamental to putting your own ideas into a program. The book that the editor used to learn Atari Basic! *Originally priced at £14.95.*

OUR PRICE £5.95

INSIDE ATARI BASIC

SOLD OUT

If you fancy dabbling with programming but are not sure of your capabilities try this excellent little beginners book at a bargain price. The book takes you through every stage of programming at an introductory level showing you just enough to get you started. If you get hooked then you can always go on to a more advanced book. Ideal for youngsters or the complete novice. Over 180 pages.

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400/800 FIELD SERVICE MANUAL

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Your last chance to obtain the 400/800 manual and at a special price. We have now picked up Atari's last stocks of this excellent service guide that is also partly relevant to the XL/XE. Contains circuit diagrams, repair information, service bulletins and much more. A great resource for all techno-buffs. *Last few copies.*

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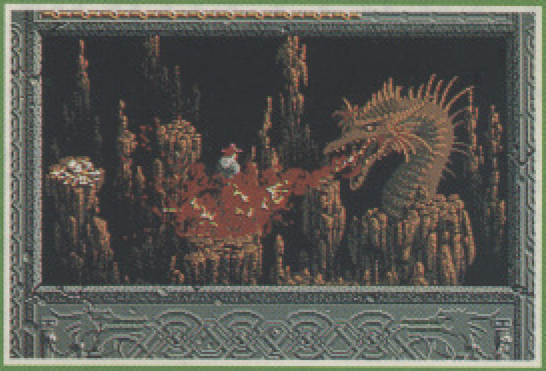
Those of you with young children might like to know that Alternative should have a couple of Thomas The Tank games out by now plus an educational program. The games are Thomas The Tank 1 and Thomas The Tank - The Race and both retail at £9.99. The educational program is Thomas The Tank's Fun with Words which will sell at full price, £19.99. Mindscape have released SPACE ROGUE which is a space flight simulation combined with role playing adventure selling at £29.99 as well as having picked up the licence for the Tom Cruise movie DAYS OF THUNDER. The game will feature high speed action with viewpoints inside the car, looking at the driver, looking backwards as well as having cameras on both front and rear bumpers - all this plus all the usual features of the computer driving simulation. Look out also for CAPTIVE from Mindscape, set in the future you try to escape from captivity when a computer malfunction awakens you from suspended animation. Domark meanwhile continue their big name licences with THE SPY LOVED ME, all the usual Bond stuff in an action packed game for £19.99. U.S. GOLD should by now have a couple of interesting games out, GOLD OF THE AZTECS, written by an ex-Psygnosis designer promises to look good if nothing else with 26 megabytes of graphics and 80 screens of tricks and traps with the hero containing over 1500 frames of animation. OPERATION STEALTH is a follow on from Future Wars, a mouse controlled action adventure which has you as a CIA agent trying to locate a Stealth fighter that has mysteriously disappeared over South America. Another from U.S. Gold is U.N. SQUADRON, a very topical game which finds a multinational peace keeping force in the Middle East trying to save the world from destruction, and this was conceived before Saddam Hussein decided to play a few games of his own! Meanwhile another type of war is being raged inside the human body in VAXINE in which you must destroy nasty viruses attacking your body cells. Others coming up from U.S. Gold are MOONBLASTER, a space shoot 'em up set in the outer fringes of the solar system, OUTBOARD, a round the world powerboat simulation and MAGICIAN a maze game full of spells, traps and nasty frogs! Elite have come back into the big licences, after quite a time releasing their back catalogue on budget labels, with GREMLINS 2 which is scheduled for autumn release. From Electronic Arts, or more precisely the Bullfrog team who dreampt up Populous, comes POWERMONGER a similar concept in which the player visits a world in which each individual has a home, an occupation and a level of intelligence. There are landscapes, fishermen, farmers, ranchers, cattle and sheep all going about their daily business as the seasons progress. As the leader of a displaced tribe you have to explore 200 territories, win the loyalty of the people, work on improving technologies, provide food and more in order to help this world survive and prosper. Sounds good! Another from Electronic Arts is THE IMMORTAL, an action adventure in which you play a wizard searching for his long lost teacher. Goblins, trolls, slime and huge worms await you in this one! More seriously come DELUXEPAINT ST, the first Deluxe product released on the ST. This package is well known and has received rave reviews on the Amiga so it will be interesting to see how it will be received on the ST. There were originally several paint packages around on the ST but few, apart from Degas, seem to have survived. With Degas now quite long in the tooth, maybe it is time for a new standard? Finally, in mid-October, 'a new concept in Advanced Dungeons & Dragons' is due with SHADOW SORCEROR developed to more closely match the tabletop version of D&D with a slower pace and concentrating more on conundrums than carnage. There is a 3D isometric play area for indoor confrontations, a hexagonal grid for outdoor confrontations, 100% mouse control and 3D animated 'miniatures' to represent your players. The scenario has your characters shepherding frightened refugees who are fleeing the Draconian armies. Your task is to protect and feed the refugees while exploring the hazardous terrain - attempting to find a safe haven out of the reach of the evil horde. It will be interesting to see how different this 'new' concept is.



DELUXEPAINT - setting new standards on the ST?



Another shot of Electronic Arts DELUXEPAINT showing one of the famous Amiga images



THE IMMORTAL - action adventure with lots of nasties out to destroy you



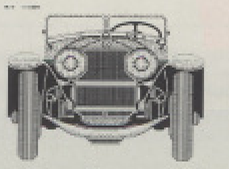
SPACE ROGUE role playing, space flight simulation

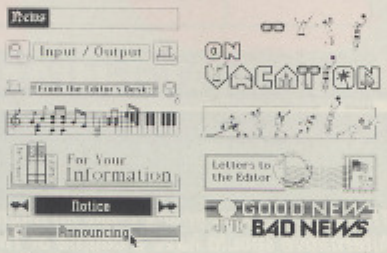
CLIP ART COLLECTIONS

Enhance your DTP or word processing with these superb collections of Clip Art that may be used in any program that accepts DEGAS format pictures. All images are in the TINY compressed format to get more on the disks but there are conversion utilities included with each set.
All images have been tested with Fleet Street Publisher and should be compatible with any DTP program or programs such as 1st Word Plus

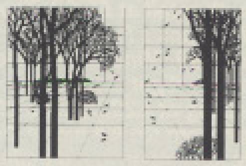
CLIP ART COLLECTION 1

Clip art images for your ST





This four disk collection contains hundreds of images for use in Desk Top Publishing or word processing programs that accept graphics. You can enhance any publication whether a full blown magazine, a humble social club pamphlet or even your own personal stationery. The images are in a compressed format on the disks to enable as many as possible to be included but there are full instructions on how to convert the images to Degas format which is a standard recognised by most programs. If your program requires IMG format pictures, these can usually be converted from Degas with utilities supplied with the program concerned. This collection contains holiday and Christmas art, alphabets, people, cartoons, sports, logos, valentines, fun graphics. whimsy and much, much more to enhance your creations.

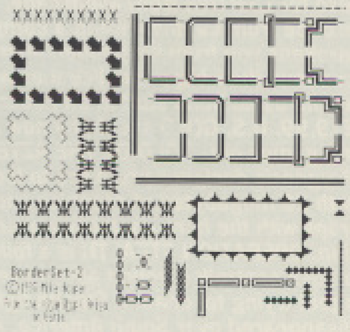


FOUR disk collection - just £10!

CLIP ART COLLECTION 2

Hundreds more images for your DTP programs



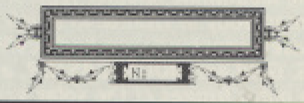


Following the success of the first Clip Art Collection we have put together a further collection of all new clip art with many diverse subjects. We have tried to balance the collection out with some large clips and several small ones, for instance two screens have about 50 faces on each! We are sure that you will find many useful items on these four disks. Three of the disks have general items including people, animals, computers, business related graphics, cartoons such as Disney and Garfield, hands, eyes, classic art and much more while the fourth disk is mainly fonts and borders. There are also a number of trademarks from the thirties which are now out of copyright. Your artwork can be enhanced by including graphics or large fancy capitals or headlines which are not normally available in most DTP programs and by using some of the excellent borders and corners on these disks.

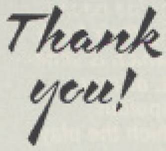


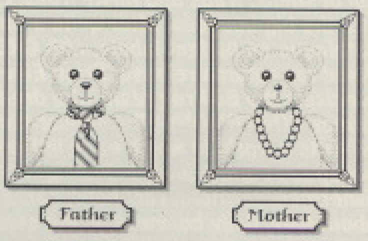
CLIP ART 2 is £10 for FOUR disks.





CLIP ART COLLECTION 3

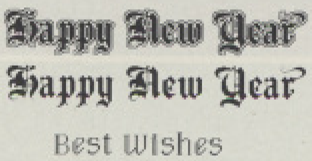


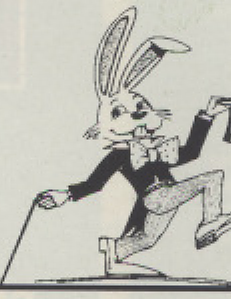


Double the images!



At last another Clip Art Collection with all new pictures including many scanned from commercially available copyright free art. There is a huge assortment ranging from people to buildings, cartoon style drawings to hand drawn objects and more. This collection is in Tiny format to get more on the disk and comes with conversion utilities to convert the images to Degas or directly to IMG.







FOUR DOUBLE SIDED DISKS for £10

CLIP ART COLLECTIONS 1 - 3 ARE AVAILABLE FROM

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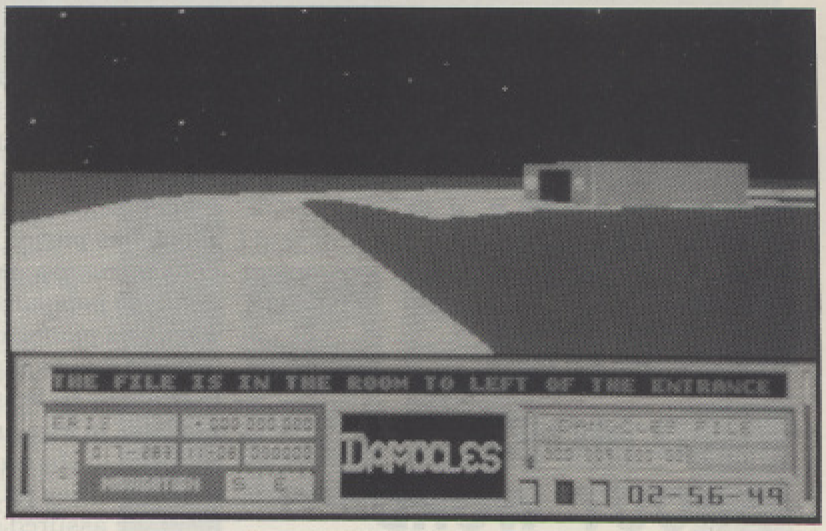
AT LAST

DAMOCLES

Well, Damocles has finally arrived! I must admit I'd given up all hope of it appearing, as it's been "coming soon" for about four years now! It's subtitled Mercenary II, and surprise, surprise, it's a follow-on from author Paul Woakes' massively popular original Mercenary game. In fact, if you successfully completed Mercenary you can even use its end game save file (if you can find it after all this time!) to import your final inventory into Damocles. This also seems to have implications only hinted at in the Damocles instruction manual!

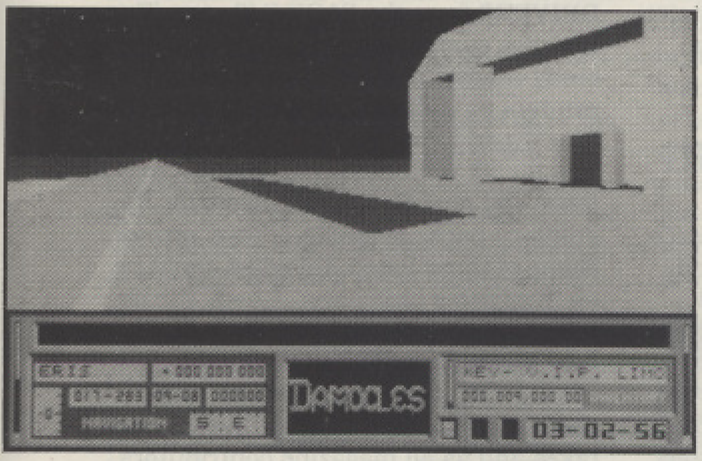
Anyone who's played Mercenary will immediately feel at home with Damocles, as its overall presentation and gameplay are very similar. The main differences are in the scenario, the scale of the game, and the graphics, so let's take a closer look at these.

Action takes place in the Gamma system of nine planets and their nineteen moons, orbiting a star called Dialis. Unfortunately one of the planets, Eris, is threatened with destruction by the comet Damocles, which is on a direct collision course with it. The president of Eris offers you the job of preventing the catastrophe and you, of course, accept with alacrity. One small snag though - you got slightly delayed en-route to Eris (for about four years - does that sound familiar?), so now you have only a few hours to prevent Damocles pulverising the doomed planet.



Mercenary involved only one city on one planet, but in Damocles you can travel almost anywhere in the Gamma system, assuming you've obtained a suitable spacecraft. You can even land on Damocles itself! But beware! Space travel is at near light speeds, causing rapid passage of time on your Eris based timeclock. Finding an alternative method of interplanetary transport is therefore a high priority task. Once on a planet you can travel on foot, by car, by aircraft, or even by space vehicle - assuming you've located a vehicle and found its matching key, of course.

Most of the planetary settlements have complex road systems on which countless buildings are located. I found it essential to map these, as many of the buildings look similar and disorientation soon sets in. You explore the buildings on foot, but some need the appropriate key before you can enter. Most buildings are multi-room, multi-storey affairs, with access to other floors via a lift. The clues and objects you need are usually hidden somewhere in these buildings, but only a few locations actually contain anything helpful. Hint - possession of an A to Z Computer can save you a LOT of time.



As expected, progress is achieved by finding useful objects, following meaningful clues, and avoiding sneaky traps cunningly laid by the author (beware Estate Agents and Solicitors, amongst others!). You may also need to do some trading to obtain essential items, and could even get involved in combat if your actions provoke an attack. It's possible to reach one solution to the game by following a fairly straightforward trail of clues, but this uses only about 20% of the game's capabilities. It's a good way of gaining experience, but more advanced players will want to discover the more challenging alternative solutions.

The most obvious difference between Damocles and Mercenary is in the graphics. Damocles uses spectacular colour filled, three dimensional graphics compared with Mercenary's simpler wireframe approach. And the speed is breathtaking! Screen refresh rates must be approaching 20 frames per second in places, making the game's first-person view of the action truly exciting. Also notable is the game's opening sequence, in which you fly from deep space into the Gamma system and down onto the surface of Eris to land at a spaceport. And I loved the way the planets and moons rise and set and wax and wane according to their orbital positions, and how Damocles changes as it moves in its orbit around Dialis.

Sound is fairly unobtrusive, limited mainly to general sound effects and the burblings of Benson, your friendly communications computer. However, if you need music you can obtain a ghettoblaster at a disco on the planet Logos. This plays a recycled version of the music from Backlash, an earlier Paul Woakes game! Nice touch.

The thing that surprised me most about Damocles is that it's contained on just one disk, and what's more, once loaded it's totally memory resident - even on a 520ST! Paul Woakes has obviously used every trick in the book to cut down storage requirements, eliminating those boring waits while new graphics load. The result? Uninterrupted action!

I can't remember when I last had so much fun reviewing a game. For me Damocles has everything - top notch presentation, excitement, depth, lots of humour, addictiveness.... I could go on forever! I won't though, I'll just get straight back to playing it instead. Buy it - you'll love it!

Title:	**DAMOCLES**
Publisher:	**Novagen**
Price:	**£24.99**
Reviewer:	**John S Davison**

PD Paul Rixon's WORLD

THE NATURE OF PUBLIC DOMAIN

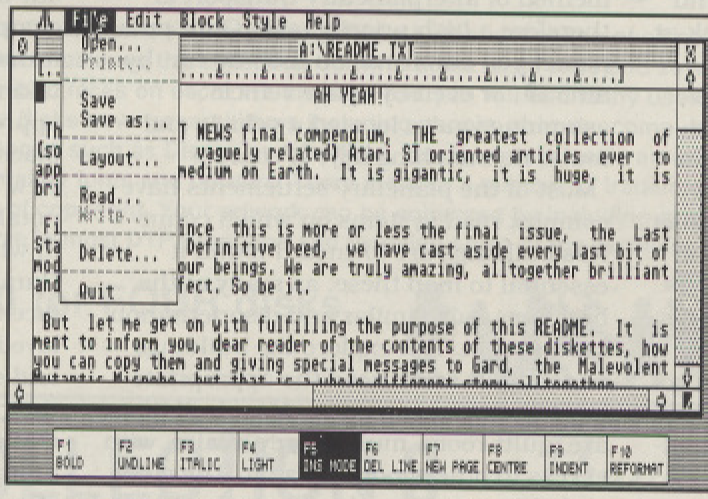
AND MORE ABOUT WORD PROCESSING

Just what is PD? The answer to this simple question isn't as obvious as you might think. Public Domain in its true sense describes work which has no copyright attached, so that you're free to copy, distribute, use and generally do anything else you like with it. Strangely enough, the majority of software in the 'Public Domain' does not fall into this category! Confused? You will be!

If the author of a program retains the copyright of his or her own work, but allows it to be distributed freely amongst other users, it is technically known as **Freeware**. Users are encouraged to make copies and give them to their friends and are not obliged to pay the author for the privilege, although donations are obviously well received.

SHAREWARE

A common form of software distribution (especially in the States) is **Shareware**, which originated when Freeware programmers began to receive money from satisfied users and realised they could obtain more certain remuneration for their efforts by formally requesting a registration fee. The author retains full copyright of a Shareware program but encourages its distribution. The small registration charge not only ensures that users can legally keep the software but also usually entitles them to receive future upgrades and, often, improved documentation. Shareware hasn't been particularly successful in Britain as the fee is essentially an 'honesty payment' which has proved all too easy to ignore. For this reason, another form of PD has grown in popularity. Known as **Licenseware** and pioneered by Budgie UK, the concept means that programs are sold exclusively by licensed distributors (such as PAGE 6) who are required to forward royalties to the author of every Licenseware disk they sell. In this way, programmers are assured of a modest income (and worthwhile incentive) and users enjoy a quality-improved but inexpensive source of software. It's good news for everyone!



Ist WORD - one of the most popular freeware titles

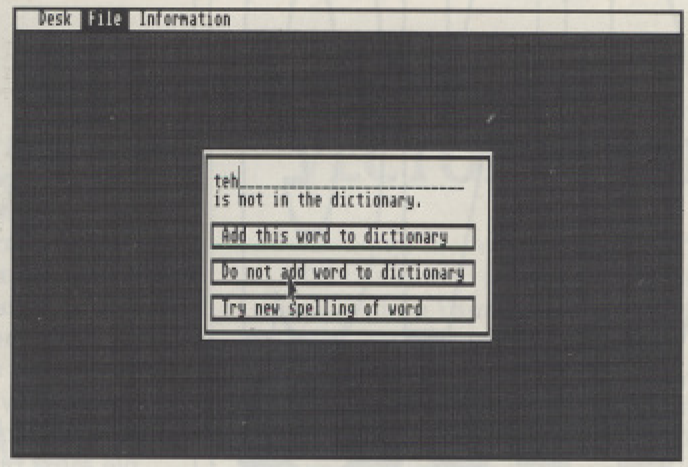
WORD PROCESSING

Last issue I examined ST Writer, Atari's popular Freeware word processor, and got so carried away that there wasn't room to cover the other disks I had lined up for discussion! The subject of word processing is therefore continued in this month's column. The slight digression above was prompted by reading a letter in a recent edition of the ST Club's newsletter (an interesting read - details from The ST Club, 49 Stoney Street, Nottingham) on a related subject. Until very recently, Atari have been bundling GST's **1st Word** with every new ST computer and the question was posed - is it PD? Some libraries have been advertising it as such, but GST have reportedly attempted to withdraw it from 'free' distribution. Apparently, the official situation is that GST hold copyright but Atari have the distribution rights and the program is therefore not in the Public Domain, although its exact status isn't precisely defined! GST are obviously quite happy that the widespread ownership of 1st Word has prompted many owners to upgrade to the commercial 'Plus' version. Atari Corporation, as ever lacking in communicative skill, have declined to comment, although the ST Club reports that Atari's contract with GST is due to expire in the forthcoming year. Whatever the future holds for GST's little gem (sic), it's certainly true that 1st Word is the natural choice in word processing for many ST owners.

Whilst 1st Word is a robust and generally reliable program, it is - like any piece of software - not without its drawbacks. Printing is, of course, an essential part of any word processor and 1st Word is supplied with ready-made drivers for Epson, Qume and Brother printers, but if you own a different make or model putting together the necessary control codes can be - at best - a bit of a pain. To make life much easier, you'd be wise to obtain a copy of **PRINTER DRIVERS** from the PAGE 6 library. This is a disk containing no fewer than 24 ready-made 1st Word drivers for various printers including Panasonic, Oki and Star. In addition there are configuration files for ST Writer (read all about it in issue 45!) plus fonts and drivers for the graphics package Degas. If your printer is one of those listed, this disk could be an invaluable time saver. Check the library catalog or the new **PAGE 6 CATALOG DISK** for a full list of content.

Few people can claim never to make spelling (or more commonly, typing) mistakes and as all magazine contributors will testify, spotting those transposed letters in a page full of text during the early hours of the morning is virtually an impossibility! In any application where professional presentation is important, a spelling checker is almost essential. Unfortunately, 1st Word shares a common deficiency with ST Writer in that it

doesn't offer a spell checking facility. The solution in both cases however, can be found on **WORD PROCESSING 2**.



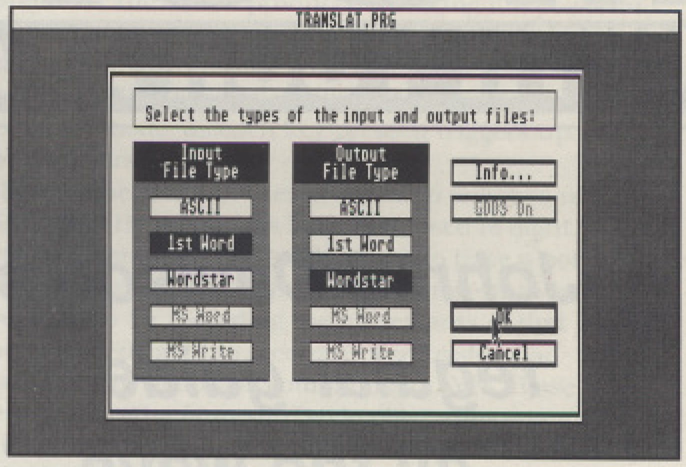
There are very few public domain spelling checkers about - SPELL is one of the best but you have to create your own dictionary as you go

SPELL CHECKING

Amongst a jumble of goodies on this disk there is a program called Spell whose function is to compare any text file with a list of correctly spelled words. When Spell finds a word it doesn't recognise, it asks you whether you would like to change the word, add it to the dictionary or simply ignore it. Initially the dictionary holds a relatively minute collection of words and the checker questions almost every phrase in the document. As you examine more files, the correct words are added to the dictionary and, in theory, you could eventually build up a disk containing your complete written vocabulary! Elsewhere on **WORD PROCESSING 2** there is a useful program for obtaining statistics of the words, characters and lines in your document plus a print spooler and a utility to set-up your printer correctly if you don't have the Control Panel installed. There's a whole lot more too!

COMPATIBILITY

If you use a computer at work or college and need to bring your documents home, or if you've just upgraded to a new word processor, the problem you face is one of file (in)compatibility. ST file formats include Protext, WordPerfect, ST Writer, 1st Word and others whilst on PC machines there are dozens more, including different versions of the same packages (such as Wordstar 4.0 and 6.0)! Some of the commercial word processors are supplied with conversion utilities to import documents from their main competitors but obviously, these can't include them all. If you don't want to lose the format of your text through a straight transfer to ASCII, the best place to turn is the Public Domain. If you need to convert your documents to 1st Word, **LASERBRAIN EPSON EMULATOR** is the disk you need. It's where you'll find 1st Convert, a program which can transform ASCII, ST Writer or Wordstar text into 1st Word format. (Incidentally, the main subject of this disk is a super utility which enables the Atari SLM804 laser printer to emulate a standard Epson printer. It includes several Elite fonts and drivers for 1st Word and Wordplus). The most flexible conversion program I've come across is File Translator, on the **UTILITIES 3** disk. File Translator can convert to and from ASCII, Wordstar and 1st Word formats via a user-friendly interface. It can operate as a stand-alone program or a desk accessory and, coupled with 1st convert, this should enable you to switch easily between most of the popular formats. If your word processor isn't supported by these programs then **Ajax** could be your last resort. No, not the proprietary cleaning substance but one of the **ACCESSORIES & UTILITIES** which, in the author's words, 'cleans and shines all non-printable characters and bleaches 'em to spaces'! Ajax just leaves the text plus carriage returns and line feeds so you should, at least, be able to make some sense of a non-standard document.



TRANSLATOR - perfect if you use different word processors

DISK MAGS AND THE STE

It would be nice to dedicate a whole article to STE demos but, as yet, these are few and far between. Maybe soon.... If you own a 1040STE there is at least one measure of compensation - I have discovered that **ST NEWS: THE FINAL COMPENDIUM** (supplied on TWO double-sided disks) will work without a hitch! *(NOTE: A lot of programs that will run on the 1040STE may not run on the 520STE even though they require less than 500k memory. Ed.)*

This very last issue of ST NEWS is as fun and readable as ever with reviews, tips, solutions, stories and some intriguing revelations in a 're-print' of the very first edition. Meanwhile, the Lost Boys have produced a disk magazine of their own. It's called **MAGGIE 1.0** and contains some VERY informative details of hidden demo screens as well as news, reviews, chat and stories, not to mention some excellent demos! Well worth a look.

SEASONAL GAMES?

Christmas is coming! Well, not quite perhaps but next issue it will be just around the corner so, in a seasonally recreational mood, I intend to examine some of the many games now offered in the Public Domain. Budgie have recently releases some cracking games so we may well take a look at those or perhaps some of the earlier public domain games that have now become classics. Whatever we take a look at you can be sure that it will be excellent value for money!

In the meantime, any correspondence sent to me at the address shown below would be most welcome. Future topics have yet to be decided and suggestions will be gratefully received!

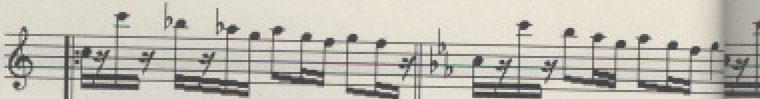
HOW TO GET THEM

All of the disks referred to in this article are available from the PAGE 6 PD library. Each has a unique reference number which you should use when ordering or enquiring about the software. Please contact PAGE 6 if you don't have a copy of their Accessory Shop leaflets and check the system requirements for each disk. THE PAGE 6 CATALOG DISK containing a full list of disk names and contents is available from the library, priced at £1. The disks mentioned in this article are:

ST22 - PRINTER DRIVERS
ST60 - WORD PROCESSING 2
ST93 - ACCESSORIES & UTILITIES
ST112 - UTILITIES 3
ST317 - LASERBRAIN EPSON EMULATOR
THE LOST BOYS' MAGGIE 1.0
ST NEWS: THE FINAL COMPENDIUM

Prices for standard disks are £2.95 each or £2.50 each for ten or more
Write to PAGE 6, P.O.Box 54, Stafford, ST16 1DR
Telephone 0785 213928 or FAX 0785 54355 with credit card orders

MAKING MUSIC WITH YOUR ATARI



John S Davison's regular guide to all the ways of making music on your favourite computer

Many moons ago I promised to tell you more about MIDIMaster, a great little package from Page 6 designed to enable Atari 8-bit computers to record and playback music via a MIDI equipped synthesiser keyboard. I held off because we couldn't actually manufacture the hardware, as we had great difficulty obtaining Molex plugs (a vital component) in small enough quantities to make the project financially viable. Unbelievably, it took over a YEAR of searching before we found a company (in California, no less!) willing to supply the required number. However, now MIDIMaster is finally available I can tell you more about it.

MIDIMaster was originally designed and marketed by 2-Bit Systems of Luton, but they eventually withdrew it to concentrate on 16-bit products. As far as I'm aware it's the only MIDI interface available for the 8-bit machines in the UK, and its loss would have been a serious blow to 8-bit music enthusiasts. Page 6, in its role as Champion of the 8-bit Users, then stepped in and negotiated a deal to save it from oblivion. It's a complete hardware and software package, comprising a MIDI interface, MIDI cables, a disk containing various software items, and an instruction manual. The original manual was rather skimpy so I've written a more helpful version based on my own practical experience of MIDIMaster. This is now included as part of the package.

The MIDIMaster hardware looks like a simple cable, but there's more to it than meets the eye! In fact, that one cable contains the MIDI interface circuitry and a pair of MIDI cables. On one end there's a standard Atari 8-bit serial connector (the infamous Molex plug!) and the other end sports two 5-pin DIN plugs. The interface electronics are cleverly built into the plugs, and are powered directly from the computer's serial socket. Connecting up is simple - just bung the serial plug into a free serial port (e.g. on your disk drive) and the DIN plugs into your synthesiser keyboard's MIDI IN and OUT sockets and you're in business.

The disk contains five main programs and several different types of music data files. The programs include a simple real-time MIDI sequencer; two music file player programs; and two voice patch editors. The provision of the "starter set" of music data files means you can be playing music via MIDI just moments after connecting up.

REAL-TIME SEQUENCER

The sequencer program records in real-time only, so you have to actually play a piece of music into it from a MIDI keyboard. It has no way of directly entering notes in step-time, i.e. one note at a time, but there are other ways of achieving this as we'll see shortly. It has eight independent monophonic recording tracks, but polyphonic chords can be handled by switching two or more tracks to record simultaneously. Also, quite complex polyphonic arrangements can be created by recording monophonic tracks one at a time and then playing them all back together. Each track can be set to a different MIDI channel and program number, providing a multitimbral capability when used with a synthesiser able to play several different sounds at the same time.

Various other features let you transpose, repeat, delay, retime, and erase tracks, and to save and load sequence files. Regrettably, there are no track editing or quantising facilities for error correction, so if you cock up a recording you have to re-record that track. As I said, this sequencer is very simple, but it can produce excellent results with practice.

If you don't have the musical skill to record each track directly from the synthesiser keyboard in real-time, you can use Atari's Music Composer cartridge or Advanced Music System (if you already own them!) to build music files in step-time. These programs were originally designed for making music via the computer's internal sound chip, but MIDIMaster's MC and AMS player programs enable you to play back the music data files they produce via MIDI instead! And if you'd rather listen to someone else's music instead of creating your own, you can always buy disks full of ready-to-play Advanced Music System files from the Page 6 Public Domain Library.

The two voice patch editors included allow you to create new sounds or edit existing ones on Yamaha DX100, DX21, and DX27, and Casio CZ series keyboards. This is especially useful for the widely used Casio CZ230S, as the only way to create new patches for it is via MIDI. The editors work by using MIDI System Exclusive messages to fetch the parameters defining a chosen voice from the synthesiser. These can then be changed to anything you wish and returned to the synthesiser and played. New voice parameters can be saved to disk and reloaded when required.

By ST standards the software is fairly basic, but it really does work and is capable of producing some very musical

sounds when used with a suitably equipped MIDI keyboard. I used MIDIMaster extensively in recording the music on Page 6's World of Computer Music Making audio cassette I described in the last issue. If you want to hear what MIDIMaster can do before buying it, why don't you get the cassette first and have a listen. I think you'll be pleasantly surprised by what you hear.

NEW YAMAHA PSS KEYBOARDS

In July this year I braved the crowds, heat, and deafening cacophony of the British Music Fair at Olympia - specifically to track down Yamaha's brand new PSS keyboards. The rumours I'd heard were true, as amongst a mass of new products Yamaha were showing a completely updated PSS range. The two MIDI equipped models of interest to Atari users are now called the PSS-590 and PSS-790. Unlike the last model update this is not just a cosmetic change. These instruments are totally different from their PSS-480/680 and 580/780 predecessors.

The most important aspect of the new models as far as the Atari user is concerned is their MIDI implementation, but nobody - not even the staff on the Yamaha stand - could tell me anything about it! So, the details below are based purely on the limited information available and a couple of hours I spent playing around with the instruments.

Both instruments have those vital MIDI IN and OUT ports and additionally the 790 also has a THRU port. They have an incredible 28 note polyphonic capability and are multitimbral (degree unknown!). It looks as if all 16 MIDI channels are supported as before, giving you plenty of scope for exercising that multitimbrality.

It's a fair bet that the MIDI System Exclusive aspects will be totally different as the method of sound synthesis has changed completely. The new instruments use Yamaha's Advanced Wave Memory technology instead of old style Frequency Modulation. AWM uses digitally sampled sounds, which theoretically produces much more realistic results when playing piano, orchestral, choir, and other imitative sounds. Unfortunately, this means that existing versions of Atari based PSS voice patch editors such as PatchEd and PSSED no longer work. Also, Yamaha seem to have done away with the "synthesiser" section on the instrument's front panel, so there's no provision for customising the sounds in the way possible on previous models. However, the 790 does have "vector synthesis", more of which shortly.

Both instruments have 100 preset AWM sounds, divided into ten major categories, including Keyboards (pianos, organs, etc), Guitars, Strings, Mallets (vibraphone, marimba, etc), Brass, Woodwind, Chorus (human choir sound), Basses, Synth (assorted electronic non-imitative sounds), and Percussion (drums and various sound effects). This last group can be played directly from the keyboard, or additionally on the 790, from eight assignable percussion pads - so you can build your own customised drumkits.

Some of those AWM sounds are amazingly good, and percussion in particular seems better than on the earlier models. However, several sounds seem disappointingly weak, and some have a higher level of background hiss than I would have liked. But having said that, overall sound quality is probably no worse than on other instruments at this price level, and is perfectly adequate for home and amateur use. Also, the instruments would undoubtedly sound much better played through a decent amplifier and speaker system, rather than the tatty headphones provided on the Yamaha stand.

VECTOR SYNTHESIS

Although the AWM sounds don't appear to be editable, the 790 has gained a trendy "vector synthesis" joystick controller like that on Yamaha's new £799 SY-22 synth, which partly redresses this loss. It allows you to assign any four of those AWM sounds to the four primary directions of the joystick (forward, back, left, right) then mix them together in any proportion by moving the joystick appropriately. You can move the joystick while you're playing the instrument to dynamically alter the sound produced - making it a powerful performance control as well as a means of producing customised layered sounds. One small snag is that the instrument's polyphonic capability is significantly reduced when playing in vector synthesis mode, as each key pressed triggers up to four different layers of sound.

The built-in sequencer has been reduced to only two tracks on the 590, while the 790's has been increased to eight. Unlike the older models, each track seems to have a polyphonic capability. The 790 has a dedicated "vector synthesis" track, presumably for recording the movements of that joystick. Another is dedicated to recording percussion pad sounds, and a third to auto accompaniment. Yes, these instruments retain the fantastic "style play" auto accompaniment features of the previous models, but there are now only 50 styles instead of 100 - but each has two variations. I couldn't establish whether these styles are still transmitted via MIDI - it's a pity if they're not.

I've always thought Yamaha's MIDI equipped PSS instruments are the best possible low-cost starting point for anyone interested in computer based music making. Assuming the MIDI implementation of these new models is up to scratch (and there's no reason to believe otherwise), then they'll continue to make excellent partners for your Atari ST or 8-bit machine (using MIDIMaster, of course!). If you're thinking of joining the MIDI revolution, make sure you check them out.

SNIPPETS

... With the imminent arrival of the new Yamaha PSS models, dealers are axing prices of the PSS-580 and 780, in some cases to under £100. At these prices they're irresistable, so grab one while you can!

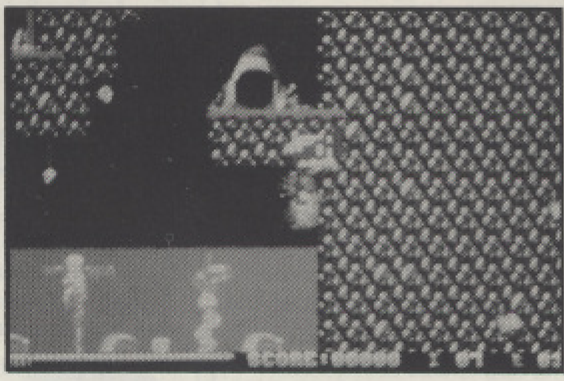
... More end of range bargains - I hear the reason for Steinberg's decision to slash the prices of their Pro-24 and Twelve sequencers for the ST is because they're being discontinued soon. Replacements are the vastly more expensive Cubase and Cubeat products. If you want these top-flight programs at a bargain price you'd better move swiftly before they're gone forever.

... C-Lab are said to be producing a cut-down version of their superb Creator sequencer for the ST, to sell at less than £200. Presumably, this is to compete with Cubeat, Steinberg's new cut-down version of Cubase.

... In the last issue there was a news item which briefly referred to a new version of Advanced Music System for the 8-bit machines. This could be a perfect partner for MIDIMaster, so I'll try to get more details for next time.

- ***The World of Computer Music Making tape is still available from PAGE 6 price £3.95. See the adverts elsewhere in this issue or write to PAGE 6, P.O. Box 54, Stafford, ST16 1DR***

FLOOD



FACTS

Title: **FLOOD**
Publisher: **Electronic Arts/ Bullfrog**
Price: **£24.95**
Reviewer: **John Davison jnr**

SIGHT & SOUND

The graphics and sound are both very well done and are suitably amusing for the style of game

GAMEPLAY

Surprisingly addictive considering it's yet another variety of a platforms and ladders game

VERDICT

A fun, cute, amusing, and enjoyable game which shouldn't tax the ardent games player too much

The idea behind 'Flood' is very simple. Within each level the hero 'Quiffy', a green blob with arms, legs, and a pair of goggles, must explore the caverns and collect all of the trash which is not nailed down. Once he has collected it all, he can then use a teleporter to proceed to the next level. In addition to the 36 normal levels, Quiffy must also negotiate his way through a further 6 levels, which have been built by the devilish Vong (whoever they may be) giving a total of 42 levels.

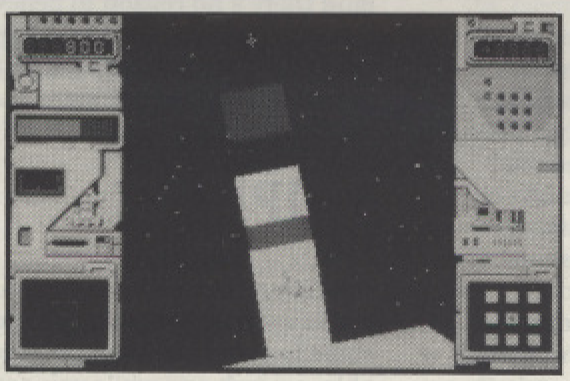
There are two types of teleporter within the game, which outwardly look exactly the same. These are the 'end of level transporters' and the 'in level transporters'. The former move Quiffy on to the next level and the latter moves him around within the environment of the level he is on.

Basically the game is of the platform and ladders variety and is therefore a descendant of the ancient tried and tested formula of moving your character around collecting objects in order to reach a higher level. Flood is by no means an original concept although it does have some little extras. Firstly, as you play the meaning of the game's title becomes increasingly apparent, as you realize that the levels are slowly filling up with water! Secondly, scattered throughout the various levels are a number of items of 'hardware', including flamethrowers, grenades, boomerangs, and dynamite! Due to the unfriendly disposition of the denizens of the caverns towards Quiffy, a good tactic appears to be to grab the closest available piece of dangerous looking kit and use it to blast anything that moves!

The presentation of Flood is of a very high quality. The graphics are of a superb standard, being suitably dull and slimy looking for the inner depths of the caverns. The sprites are very smoothly animated and excellently drawn, and as an added bonus Quiffy himself scores very highly on the 'cute' scale. The sound is also very good indeed. As far as I can tell the spot effects are all sampled and of a very high quality and quite appropriately used.

Overall I was very impressed with Flood. It's amusing, fun and compelling in its gameplay. Very enjoyable.

ROTOX



FACTS

Title: **ROTOX**
Publisher: **U.S. Gold**
Price: **£19.99**
Reviewer: **John Davison jnr**

SIGHT & SOUND

The graphics are dull and jerky and the sound is feeble

GAMEPLAY

zzzzzzzzzzzzzz.....

VERDICT

The hype for this game must have cost a fortune. They should have spent the money on making it playable!

Rotox - the man was a trooper injured in combat. Rotox - the cyborg has been transformed by 22nd century science into a devastating cybernetic fighting machine. Rotox - the game is the proving ground.

Specially constructed landscapes in deepest space provide a nightmare environment of deadly machines and hostile lifeforms. Mistakes are fatal. Survive and you will build yourself into a lethal fighting machine. Fail and your soul will wander the galaxy forever.

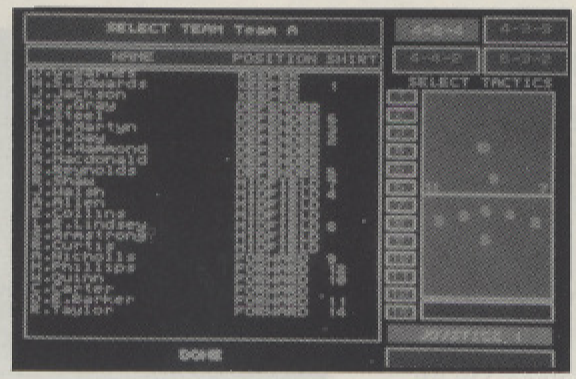
The amount of hype which has surrounded this game made me curious but as with many games the hype is by no means justified. In a word, Rotox could be summed up as 'BORING'.

There is nothing revolutionary about the game at all. You merely control your 'cyborg' as he walks around the 'hostile environment' shooting things. The view of the game is solely from above, as you move the great warrior around. The packaging proudly boasts of a 'revolution', where Rotoscape enables you to move around a background landscape of polygons. It then goes on to say that you can "watch in amazement as the background zooms, scrolls, and rotates through 360 degrees around you, giving an incredibly lifelike feel to the game." There are a number of things I could say in reaction to that statement, however, most of them aren't printable!

The basic idea of the game has you walking around the landscape clearing the sectors of hostile aliens and collecting items of weaponry for your artillery. In places the game has its inspiring moments, but these are few and far between. In theory this should be a very interesting game as the idea is not at all bad, however the actual execution of the theme outlined above is quite dreadful. There is certainly nothing 'revolutionary', as games like this can be found on most computers.

The graphics are uninteresting. The animation is jerky and the sprites are drawn in a very simple manner. The sound effects are uninspiring. It took many hours of playing to make me finally accept that, sadly, this game is quite amazingly and outstandingly boring.

KICK OFF 2



Kick Off 2 with World Cup 90 as a bonus is the sequel to that immensely successful soccer game of last year. Firstly it is necessary to point out that the world cup game is only really a background to this upgrade and can in fact be juggled around to stay relevant for subsequent years.

With that sorted out let's see just what has changed since the last Kick Off. Well in the first place it is now possible to design the teams strips, and do away with the odd one colour strips of last season. There is a far better league creation mode for up to 4 players a game and there are options to astound your friends with the Golden goals competition, yes you can save your scores to disk to study later. The system seemed to hold up the game and felt immensely complex but wprked.-

The game also contains options to be a player manager in your own team and even the chance to select your 16 man squad and select substitutes as needed. As a soccer simulation it seems to be reaching a peak but sadly it remains most tricky to beat the computer even when the most favourable levels of skill are chosen, although this does encourage the necessary practice and ensures the game a long attention span. One boon to poor players such as myself is the option to slow a game down to about 50% ostensibly to watch the development of plays, but fortunately to make the game more playable.

It is quite impressive to note that each team has it's own personality when played by the computer, Brazilians use flare and speed while Germans build up from behind solid defences.

This is a game which is a worthy successor to its parent, although I still feel that the control mode can be a little hit and miss. Finding a teammate to pass to can be tricky and it takes a lot of time to discern just where the goals are relative to any particular player. I was pleased to see that the referees had been kept and there is even a facility to select your own favourite ref.

I enjoyed this game although I found the constant trouncing by the computer very depressing. A very good soccer game, better than its predecessor.

FACTS

Title: **KICK OFF 2**
Publisher: **Anco**
Price: **£19.99**
Reviewer: **Damon Howarth**

SIGHT & SOUND

No really exciting sounds but smooth scrolling sprites keep the player's attention fixed on the field which is necessary

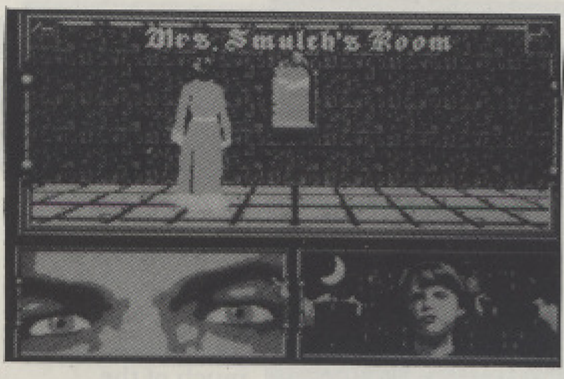
GAMEPLAY

Fast, smooth, versatile and exciting. Possibly too many joystick movements but that can be adapted to

VERDICT

Probably the best football simulation for the ST at the moment. If you liked 1 then 2 is better well worth buying

GRIMBLOOD



FACTS

Title: **GRIMBLOOD**
Publisher: **Mastertronic**
Price: **£4.99**
Reviewer: **John Sweeney**

SIGHT & SOUND

Lots of good stuff, shame the gameplay didn't match it

GAMEPLAY

Slow and tedious - badly designed

VERDICT

Not recommended - even at its budget price!

The introduction. "Murder and mutilation stalk the corridors of Castle Grimblood, and terror rules the day...."

Sounds promising! Load it up and it looks and sounds promising! Play it and you will probably be disappointed!

The first problem I had was that I couldn't get it to load on my 1040 STE. So, I tried on my very old 520 ST with its 1MB External Triangle disk drive. That wouldn't load either. I rewired the old 520 to use its original SF354 .5MB drive - finally it worked!

Nice graphics, nice music, nice voice synthesiser, looks as though it should be good!

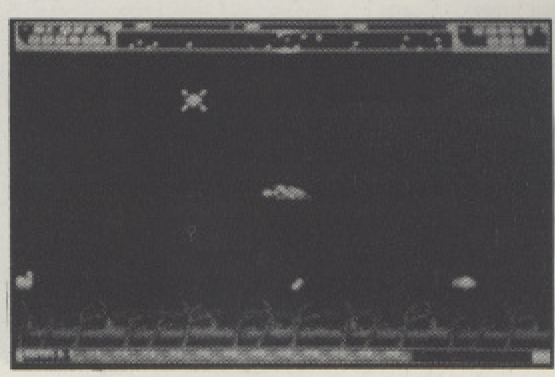
One of the 23 characters (lots of nice little portraits) is going around the 60+ rooms (nice graphics of the Castle and all its windows) killing the rest of the guys with various of the 16 odd implements scattered around. You can use the mouse to move around the castle, check for objects in rooms, look for secret passages, and interrogate people. "Grimblood is controlled entirely from the mouse"; "by pressing keys F1-F10, you ask questions of the person" - huh?

As you can probably guess, Grimblood is basically a form of Cluedo. However, the questions seem rather pointless as the murderer is allowed to lie to questions like "Where were you at the time of the murder?", and no-one ever admits to having touched the most recent murder weapon; and you can rarely find the person you want to interrogate anyway since there are far too many locations - 62 rooms plus corridors and secret passages.

I got bored with the music fairly quickly and turned that off. I also got fed up with the speech synthesiser (especially as it is sometimes incomprehensible - Nightjar sounds like My Bath!) and turned it off hoping that that would speed up the game; unfortunately it doesn't - and you need it anyway as it is the only way to find out where a door leads! And the graphics get very tedious after a while as well - it insists on spending 10 seconds showing a door slowly opening every time someone enters a room!

I won a couple of times, but only through luck, and after the third time the game hung!

ANARCHY



Long, long ago and far, far away in the time of the early 8 bit there was an arcade game called Defender. In this game there was a revolutionary new concept of two way horizontal scrolling and a windowing technique to act as a radar system. The basic idea was to stop a variety of unpleasant spacecraft kidnapping your space bases.

Now Psygnosis have followed in the wake of Classic Invaders and produced Anarchy, the reason for the title escapes me as it has as much anarchical content as Young Ones Rick's poetry. The game is though well made graphically and is very faithful to the old arcade game, it plays extremely fast and furious and maintains a strong soundtrack and spot effect when running.

In gameplay there are options to pick up the occasional bonus globule that will allow for the various mandatory special shoot 'em up effects. One interesting variant on the original is that it is now possible to coat your space cubes with a force field to prevent damage and theft. There is also the opportunity to have a second cannon running alongside of your ship to give twice the firepower. These ammunition pods can also give other various high powered destruction variants, I suspect the auto fire joystick would make this game a great deal easier.

Having said this there is very little more to the game. Each screen or level is very like it's predecessor only faster and the hyper space mode that is entered on losing all your capsules is even faster and less decorative than the initial screens. I fear that I have come to expect a high degree of originality from Psygnosis and this game is somewhat of a disappointment from that point of view.

My second bone of contention is with the packaging, it shows some very good screens but it shows the Amiga shots more akin to Blood Money while the ST shot shows the reality of the wasteland of this game.

I am ambivalent about this game. In some respects I would feel cheated by this if I bought expecting something in the usual Psygnosis style, but on the other hand if I wanted an updated version of Defender then this would certainly merit serious consideration.

FACTS

Title: **ANARCHY**
Publisher: **Psygnosis**
Price: **£24.99**
Reviewer: **Damon Howarth**

SIGHT & SOUND

The graphics are well implemented but unimaginative while the sound is strong and effective

GAMEPLAY

A very good arcade conversion, joystick control is excellent, the level choice is friendly, the game quite fast enough

VERDICT

I have a lukewarm re-action to this but then Defender was never one of my favourite arcade games anyway!

DYNASTY WARS



FACTS

Title: **DYNASTY WARS**
Publisher: **Capcom/U.S. Gold**
Price: **£19.95**
Reviewer: **Damon Howarth**

SIGHT & SOUND

The graphics are large and colourful with good spot effects. The loading is fun, fine arcade style

GAMEPLAY

It seems very repetitive with little to add to the excitement. Maybe 2 player mode helps a bit but not greatly

VERDICT

A playable game that would not really set any desires aflame

Capcom are becoming synonymous with good arcade conversions and this piece of software maintains their image well. For those of you who remember the Water Margin and those strangely dubbed Chinese Hero films this will be a trip down memory lane.

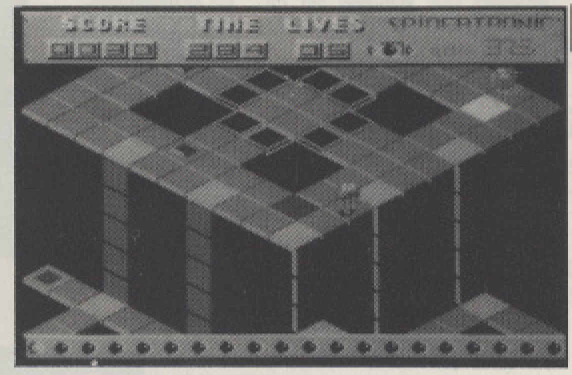
The very simple scenario is that you and possibly a second player must select one of the four heroes to go out and defeat the raging and tyrannical generals supporting the unlawful dynasty. It is your goal to restore law and order and also to rid China of those difficult Man Chu upstarts. To achieve this the character must ride his horse through a horizontal scrolling wilderness killing and maiming as much of the peasantry and local militia as possible. Granted they can be sneaky with their rocktraps and fire-bows but nothing a true hero can't cope with!

Should the going become a little tough then each hero has the ability to work magic, this can produce rockfalls or fireballs or other such disasters to help you on your way.

The controls are a little idiosyncratic and rely on the duration that the joystick is depressed to build up the strength of the blow. On the whole though the game manages to cope with them. Sometimes selection of a few functions becomes pernickety but there is a flow to the events that maintains interest.

The major problem with this game is that once you have played for an hour or so it rapidly becomes extremely repetitive and lacking in real challenge. While there is some variety in the choice of the four heroes, both the gameplay and the scrolling backgrounds become a little wearing. The whole game is very well programmed and is an excellent feat of conversion but even so it falls foul of many conversions in that it lacks a long term "hook". Perhaps with arcade games in arcades the real challenge is to complete it before you run out of money. Sadly I would suspect that even the most avid gamester would tire of this inside the arcade. There is little room for tactical thought within the game and it does not compare with Strider, for example, in its challenge.

SPIDERTRONIC



FACTS

Title: **SPIDERTRONIC**
Publisher: **Smash 16**
Price: **£4.99**
Reviewer: **Damon Howarth**

SIGHT & SOUND

Both of these are excellent especially the loading screen sonics

GAMEPLAY

Well graded to maintain interest and addictive level, all controls are extremely responsive-

VERDICT

My favourite this time's bunch, excellent value and good fun, highly recommended

This game was created by the makers of Captain Blood and shows all the same Gallic ingenuity of that classic. It is a simple game but like all the simple games one that requires cunning and devious logic.

Quite simply the player controls a small spider robot that must place various coloured slabs along an exit causeway before Prisoner style bubbles envelope it. The only defence the spider has are its web which can destroy bubbles caught in it. It is an unfortunate fact for the Spiderbot that these coloured slabs are placed all over a very large multi storied grid full of black holes and other hindering scenery.

The layout of the board is reminiscent of Marble Madness although the later stages bring about mazes that are quite confusing. The pace of the game starts off fairly comfortably but proceeds to frantic at a rapid rate. The 3D effects of the maze are good and the joystick response extremely positive. The possibility of running out of levels is somewhat remote but in that unlikely event there is the option to create or customize levels to your design.

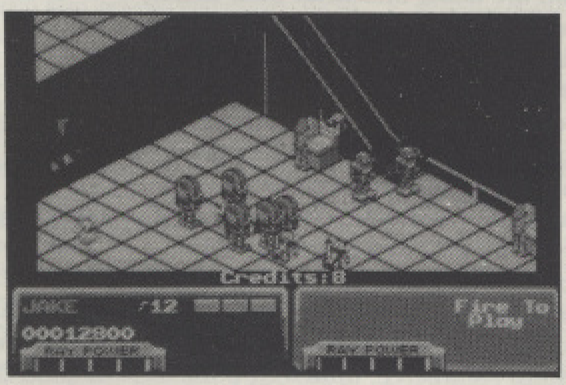
This creation process is both easy and entertaining to do. Indeed once your frustration with the evil balls has risen too far it is most relaxing to take time out to create some more direct and less frustrating settings for the Spiderbot to circumnavigate.

It is once more most pleasing to see that budget games are offering such good value and of those games I have seen this time round Spidertronic was my favourite. It maintains a sense of fun and originality that I sometimes fear has been lost to the games world in this mire of conversions and shoot 'em ups. The action maintained my interest into several wee small hours and gave the cat great pleasure as it tried to bat the balls off the screen!

The screenshots on the packaging are all ST shots and reflect the game quite accurately. For those of you who enjoy good title music then the loading screen is well worth listening to since it brought back echoes of the Scandinavian group Focus to my ears.

If you see this game lurking unbought in the budget corner of your local shop snap it up and you will not regret it.

ESCAPE FROM THE PLANET OF THE ROBOT MONSTERS



FACTS

Title: **ESCAPE FROM THE PLANET OF THE ROBOT MONSTERS**
Publisher: **Domark**
Price: **£19.99**
Reviewer: **John Davison jnr**

SIGHT & SOUND

The graphics are mediocre but by no means dreadful, with animation being a little too jerky for my liking. Sound is fairly feeble

GAMEPLAY

Great fun for two players, but not so much for one player as it gets a bit tedious

VERDICT

A reasonable shoot 'em up combining ladders and platforms 'thinking' with Robotron 'blasting'

Escape from the Planet of the Robot Monsters is a two player simultaneous rescue mission in which you, as either of the dashing heroes Jake or Duke, must rescue Professor Sarah Bellum and free the enslaved hostages before they are turned into Robo Zombies! You must also find and break into the food and bomb lockers to get special weapons and supplies to help you destroy the evil Reptilons.

The object of the game is to progress through the three dimensional environment of the factories of Planet X rescuing hostages and destroying the Reptilons which guard them. Around the factories you will encounter multitudes of hostile robots which will do all in their power to hinder your progress. However, with a sufficiently high level of 'fire button finger' stamina these can easily be disposed of. At the end of every three levels you will encounter one of the evil Reptilons who must be destroyed by continuous gunfire and bombing. At first this will prove to be a major problem for a beginner, but after some time the defensive methods of each of these foul creatures can be analysed and counteracted. At the end of every fourth level you will have to traverse the 'Canal Zone'. In this particular stage Jake and Duke must hop into their 'Cyber Sleds' where they will have thirty seconds to move through the winding tunnels to reach the next factory level.

Graphically this game can be divided into two categories. Firstly the title screens and 'between level' screens are of a very high quality. The cartoon style graphics are well drawn and very colourful, but the game screens themselves aren't that impressive. The animation isn't particularly good and the definition of the graphics could be better. The scrolling quality is also fairly poor - while not being exactly jerky it isn't especially smooth either. Sonically, the game isn't too bad. There's a catchy little tune playing in the background - nothing marvellous, but it's far from the dreadful droning of many other games.

In terms of playability I would liken this game to a three dimensional two player version of Robotron.

On the whole it's a good blast.

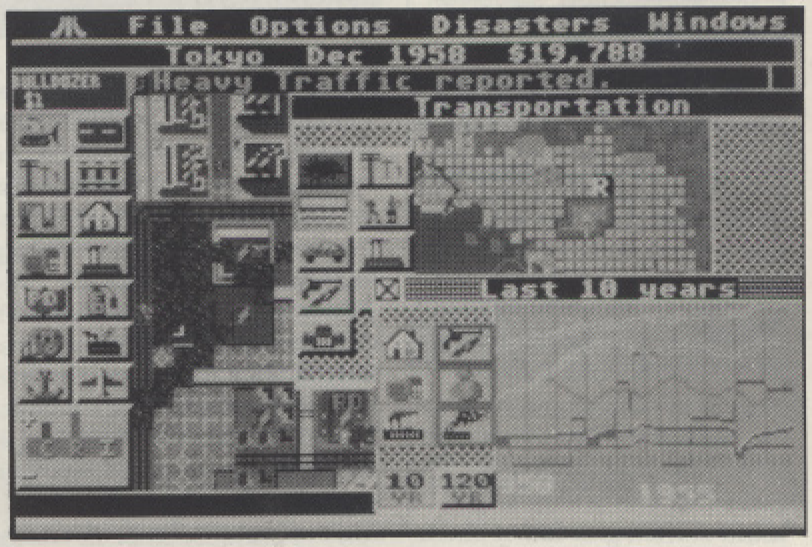
SIM CITY

Computer games allow you to enter a fantasy world and fulfil your wildest dreams; you can be a wizard or a warrior, explore distant planets or relive Napoleon's battles, be an ace fighter pilot or a City Planner ... huh? - a City Planner? You mean you have never fantasized about being a City Planner? Well, never mind, try Sim City and see what you have been missing!

You not only get to be City Planner, but Mayor as well (i.e you set tax levels!). There are eight scenarios provided, ranging from Nuclear Meltdown in Boston to Earthquake in San Francisco, each with specific objectives to be achieved within a limited number of years. But the main goal of Sim City is to allow you to design the city of your dreams - as long as you plan it carefully and provide places for living, working, shopping and playing, while controlling problems such as traffic, pollution, overcrowding, crime, taxes, etc. then lots of simulated people ("Sims") will come and live in your city!

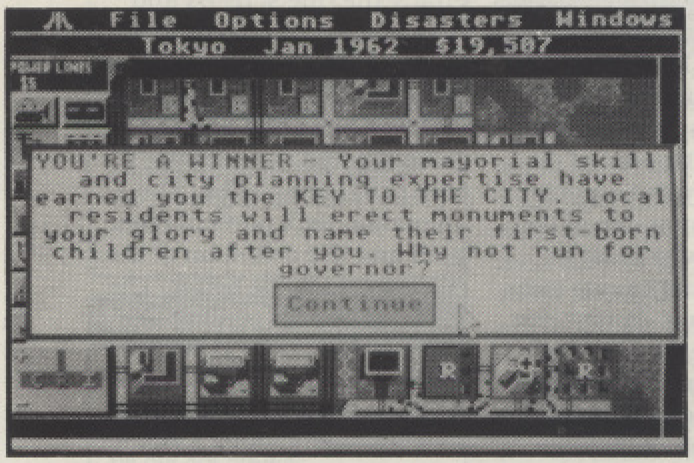
The simulation is almost completely mouse driven, using lots of icons and windows (you can use the keyboard for some of the commands - but Q for querying an area, and 0-3 for controlling speed were the only keys I ever used). The main playing area is a large scrolling window showing part of your city plus icons to allow you to: bulldoze areas; build power lines, roads, railway lines, parks, police and fire departments, stadiums, power plants, sea ports and airports; and designate areas/zones as Residential, Commercial, or Industrial.

If you make sure that these zones are provided with power and access to transport, then the computer will generate thousands of Sims who will build houses, offices and factories. The Sims manifest themselves to you in a number of ways. First buildings will appear, then lots of little black dots will start zipping up and down the roads showing the traffic density. Secondly they will start complaining - the latest poll figures are available in a window so that you can see what sort of job they think you are doing and what their major gripes are - taxes, pollution, crime, house prices, etc. Thirdly they will start demanding things: messages appear at the top of the screen to let you know that they think the roads are inadequate, or that they want a stadium or an airport.



" design the city of your dreams "

You can open windows to view maps of the city outline, the power grid, and the transport systems, showing traffic density, crime rate, land value, etc. and graphs of historical trends in population, commerce, industry, pollution, etc. The manual has a chart at the back to help you understand how all these things affect each other, so once you have found a problem area (e.g. population dropping rapidly or crime rising rapidly) you can work out the sort of actions which might affect it.



The 50 page manual also includes a Tutorial to help you get the most out of all this information!

Sim City is very flexible so you will undoubtedly develop your own style of play. I usually freeze the action (press 0); check the polls for the main gripes; scan the overall maps for problem areas relating to that gripe; decide on a plan of action; bulldoze, zone and build as necessary; set the action going again (press 3); sit back and watch for a few months (each month will take from 10 to 50 seconds depending on the size of the city). Repeat as necessary!

Everyone I know who has played it has thoroughly enjoyed it, at least to start with. Unfortunately, it does not appear to have as much lasting appeal as I had hoped. Once you have built a couple of cities and solved a few of the scenarios it gets to be a bit "samey". Perhaps a few more scenarios would have helped.

Maybe the next one will keep me interested for longer - it is called Sim World!

Title:	**SIM CITY**
Publisher:	**Infogrames**
Price:	**£29.99**
Reviewer:	**John Sweeney**

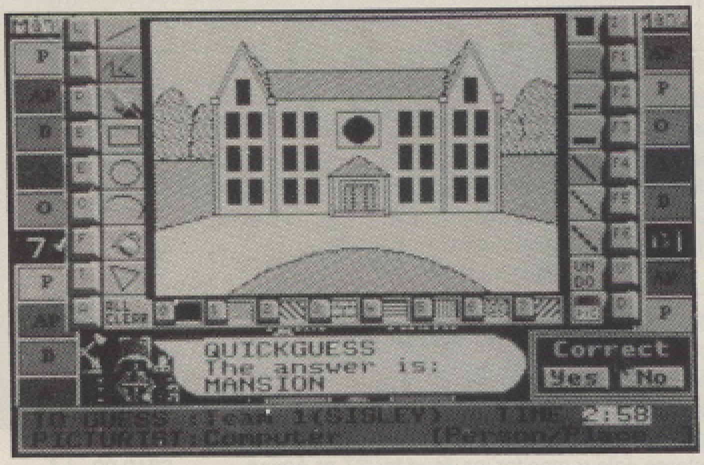
- ***GAMEPLAY*** *- Very well designed, allowing you to easily pin point problem areas and implement modifications to your city - the mouse control, icons and windows work well together in most respects*
- ***GRAPHICS*** *- Excellent!*
- ***VERDICT*** *- Undoubtedly an excellent simulation; even if you don't like that sort of thing you are likely to get some fun out of it - and lots of people seem to get thoroughly addicted to it*

PICTIONARY

Pictionary is the most unusual game I have seen in a long time, being a computerised version of a board game with the same name. It's produced by Domark, who were also responsible for that other blockbusting board game conversion - Trivial Pursuit. In fact, both games have a number of similarities, both in the way they're played and in the general style of the computerised presentation.

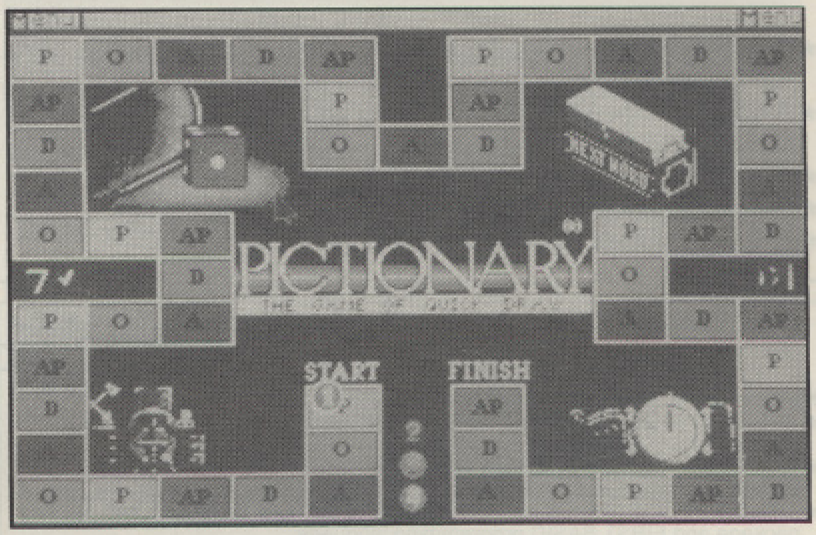
Your objective in playing is to progress round the playing board as quickly as possible and be the first to finish. You earn the right to move by correctly identifying a word from a picture representing it drawn on the screen, and if successful you move the number of positions determined by the roll of a die.

Like Trivial Pursuit, the board positions are marked with different subject classifications, and you have to draw pictures representing words from the category you land on. In Pictionary these are Person/Place/Animal (one classification), Object, Action, Difficult, and All Play. These are self explanatory except for the last two. 'Difficult' covers challenging words in any category, i.e. ones you're likely to have trouble with! 'All Play' can be any type of word, but ANY player can attempt to identify it, not just the current player. The person answering correctly takes the next turn, so it's a way of introducing an element of unpredictability into the game.



Title:	**PICTIONARY**
Publisher:	**Domark**
Price:	**£24.99**
Reviewer:	**John S Davison**

One to four individual players, or two to four teams can play Pictionary. When you play as individuals, the computer handles the business of drawing the pictures. It secretly chooses a word (from its 2500 word list) for the category determined by your current position on the board, then slickly unrolls a blank drawing canvas over the playing board.



The screen now takes on the appearance of a drawing program, complete with a set of drawing tools for producing lines, circles, fills, etc., plus a selection of line styles, colours, and fill patterns. The computer now proceeds to illustrate the word with an appropriate drawing. It really is fascinating to watch the computer at work, as it chooses the appropriate tools to sketch out the picture just as a human would.

When playing as teams, one member from each team is nominated as the 'Picturist' (what an awful term!) and has to draw the word chosen by the computer for the rest of his team to guess. Four word cards, each containing a different set of 128 words for each category, are supplied as part of the package. The words are arranged in a matrix, so the computer can tell the Picturist which word to draw by referring to its row and column number. In this way the word remains hidden from everyone else.

The program has a 'practice mode' permitting you to use the drawing facilities without playing the game. This turns it into a mini art program, and you can even save your work to disk and reload it later, or transfer it to NeoChrome for further embellishment.

At the start of a game you can set a time limit of 1, 2, or 3 minutes, which acts as a control of difficulty level. The drawing and guessing of the word must be completed in this period. If the guess is correct the computer rolls the die, moves the appropriate counter along the board as required, and the process begins over again. If not, the next player or team take their turn. The winner is the first player or team to reach the last position on the board and correctly guess the final word.

Points are awarded for a correct guess, based on the number of seconds remaining of your time limit. During play you can display the score table, which shows points scored by each player or team, number of words guessed, average time for guesses, and number of games they've won since play started.

Pictionary really is a delight to use. Everything can be controlled with the mouse, joystick, or keyboard - alone or in any combination. There are no commands to remember as everything can be done by menu or button selection. The clear, colourful graphics help too, and there's even a little chap at the bottom of the screen who reminds you what to do next via 'speech bubbles'.

This is undoubtedly another winner from Domark. Whether you play solo or with friends it's tremendous fun - even if you can't draw very well. If you liked Trivial Pursuit you'll love Pictionary.

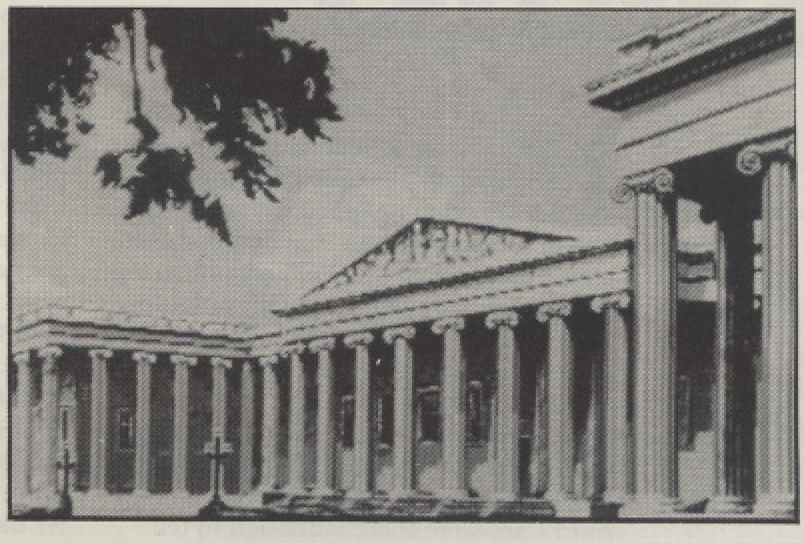
- ***GAMEPLAY*** *- easy to use, fascinating to watch, and great fun to play*
- ***SIGHT AND SOUND*** *- clear, colourful background screen plus intriguing computer generated drawing sequences. Sound is limited to title music plus a few well executed sound effects - perfectly adequate for a game of this type*
- ***VERDICT*** *- the best game I've seen in ages*

HOUND OF SHADOW

At first glance this looks like a standard Text Adventure with Pictures. But...

The manual says, "This is NOT a conventional adventure, where the gameplay relies heavily on object collection, manipulation and logical puzzle solving. The Hound of Shadow is a role-playing game - a realistic simulation of an imaginary world."

Eldritch games have developed the concept of a 'Timeline Character', with many, many personal attributes, which you can use not only in the Hound of Shadow, but also in their future games. Unfortunately the initial implementation in Hound Of Shadow is much too limited. True, the character creation system is all there - you can spend half an hour inventing your character - sex, age, background, profession (nine to choose from, ranging from Freelance Reporter to Psychic Investigator), and allocating him or her skill points in over 40 different categories, from Brawling to Electrical Engineering, and from Escapology to Written Languages!



But it all seems to have very little effect on how the game plays. Occasionally you will get an extra paragraph of text displayed, relevant to your background or skills, and occasionally it allows you to appear to progress slightly faster. For example, at one point you need to translate an ancient text written in Latin and German. One of my characters could, one couldn't. So, what should I do? I tried to develop my character by getting Latin and German dictionaries and grammars and studying them - the game let me attempt this, but then told me I could not succeed anyway. I decide to try and find another solution to the problem. But the game doesn't let you - as soon as you leave the reading room you ALWAYS meet your friend who INSISTS on translating the book for you whether you like it or not! Which makes having the skill yourself all rather pointless!

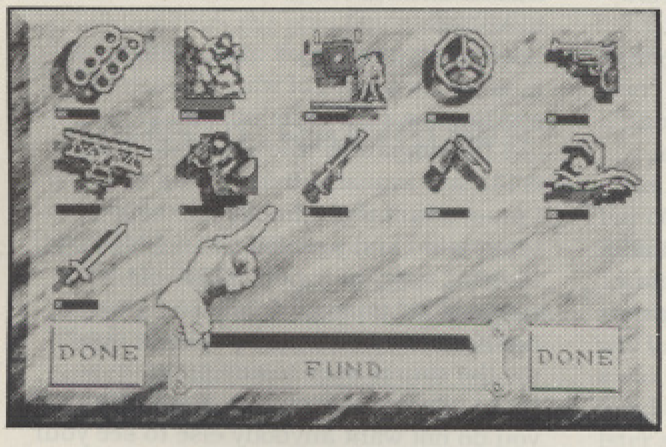
The game is also far too limited in what it can understand. 90% of your commands will be answered with "I beg your pardon?" or " I don't understand that". Most of the game consists of WAITing while things happen around you, until you are told to do something, then trying to guess what is the only command they have programmed in to allow you to tell it what you want to do!

There are quite a few bugs and inconsistencies. Some of the nastiest include: you must refer to GASCOIGNE as JOURNAL (despite the fact that all other books are referred to by the author's name!), and if you want Miranda you must WRITE to her (despite the fact that there isn't time, and that when you do the response says that you don't actually write anyway!). Each of these wasted a couple of hours for me, as I knew exactly what I wanted to do, but couldn't get the game to accept my commands! And at the end of the game, just typing WAIT UNTIL 12 instead of WAIT can mean that you (illogically) die and have to reload the game from scratch - another five minutes of your life down the drain!

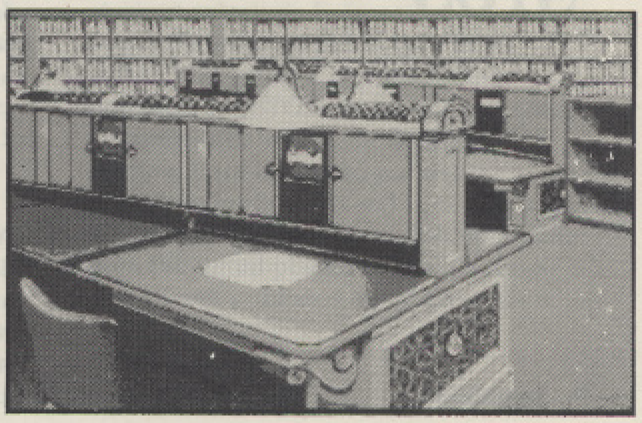
On the positive side, The Hound of Shadow does have an interesting Lovecraft-style horror plot, there is lots and lots of text, and the full-screen pictures are excellent.

I understand that they realise that their parser is too limited and that future games in the series will use a completely new one. It is an ambitious project and could develop into an excellent series - time will tell!

- ***GAMEPLAY*** - *Mostly a fairly straightforward text adventure*
- ***GRAPHICS*** - *Excellent full-screen pictures of London in the 1920s*
- ***VERDICT*** - *Good story, not so good implementation - let's hope the next one is better*



Title:	THE HOUND OF SHADOW
Publisher:	Electronic Arts
Price:	£24.99
Reviewer:	John Sweeney



PeterHickman's STOS COLUMN

News about ...

STOS Vidi

New STOS PD

Programs for ...

Rainbow

Routines

Sprite Plotting

Plus...

All the latest gossip about STOS

It's that time of year again, yep you know when all those computer shows seem to appear all in one go. The Commodore, Atari and 16 bit shows have just finished and I'm now preparing to pop along to the European Computer Entertainment Show (although by the time you read this it will all be over, ahhhh..). Actually I didn't attend the Atari show (as you will know if you read last issues column) but I did pop along to the 16 bit Fair, and what fun it was. New Atari User were there (although to tell you the truth I didn't find out until I got home and sifted through the myriad of carrier bags filled with catalogues and leaflets etc.). Maybe I'm getting old but it was really LOUD in those halls, with almost every conceivable piece of musical hardware (STE's, Amiga's, Sega Megadrives, PC Engines) blasting out melodic (and not-so-melodic) orchestrations.

VIDI ST

Rombo, those wonderful manufacturers of Vidi ST had a little surprise on their stand, no not STOS Vidi but they were selling the STOS extension for Vidi. I have it on good authority that the editor for the STOS Vidi extension will be completed soon, by a small group of programmers called the Hi-Tech-Hairies, watch this space for more information. Anyway borrowing an Hitachi CCTV video camera I tested the extension and just between you and me - it's brilliant, everything you can do with the original Vidi editor can be done with STOS, I can't wait for the STOS Vidi editor.

STOS DEMOS

Also while at the show I met up with Alastair Craig of Riverdene PDL who have just produced an excellent STOS demo with fabulous graphics and wonderful sampled sound, the demo itself is public domain (and is available from the Page 6 PD library) but the source code is shareware and is only available from Riverdene (phone number at the end of this column). I have exhaustively dissected this source code and have discovered some very interesting new things, one of which is a poke which turns off the mouse completely. Actually a lot of the techniques which the demo uses are cheats, they look absolutely mind-blowing but they are achieved so simply you'll kick yourself 'cos you never thought of them.

While I am nagging on about demos there is another STOS demo from Richard Gale (creator of the brilliant STOS Typing Tutor). Using one of the robots from Sprite 600 you can walk around and enter demo rooms (in typical ST demo style) which then load up a new demo. This one contains a lot more than the Riverdene demo but it isn't quite as innovative. The source code is available directly from Richard Gale (for a small donation towards the Encourage-Richard-To-Write-Another-Fabo-Demo fund) so check it out (yes it's available from the Page 6 PD library).

THE COMPETITION

The STOS competition is now over (finally) but I cannot give you a list of prize winners at the moment 'cos I'm writing this at the beginning of August, a full list new time.

Before we take a look at the programs I must issue a word of warning, anybody sending me stuff must now make sure it is STE compatible (the 1.6 STOS update is PD and available from, guess where?). I must admit that I finally succumbed to temptation and upgraded to a 1040STE (I couldn't cope on my old 520STFM with single sided internal drive), so if you do not have the STOS update please send me the source code to any program so that I can run it from my copy of STOS (if you do not want anybody else to see your source code just say so and it will remain locked away).

RAINBOWS

Okay, onto the programs (there are quite a few this issue), the first two come

from Anthony Hoskin who has sent me a solution to the appeal I made for a STOS rainbow routine many issues ago. Thanks Anthony, the PD discs I promised are on their way.

THE RAINBOW MODULE

PROGRAM 1 creates a small module which can be loaded into a STOS memory bank, here's how it works

LINES 10-140 tell you about the program
LINE 160 clears the screen and opens a resolution independent window (but remember this routine only works in medium or low res)
LINE 200 reserves a small amount of memory for the routine (800 bytes, less than 1k!!) and finds the start address
LINES 210-220 read in the data and poke it into the memory bank. The result from each 'read' is added to the variable CHECKSUM, this allows a rudimentary error checking
LINES 290-600 contain the data for the memory bank

Ok, so there is quite a bit of data and you really want this routine (don't you?) but you don't really want to type it in. To solve this problem buy the latest STOS column disc, filled to the brim with the programs from the past few issues, available now from the Page 6 PD library.

```
10 rem  ******************************************************************
20 rem  *                                                                *
30 rem  *                    RAINBOW Program listing #1                  *
40 rem  *                                                                *
50 rem  *  Creates a RAINBOW.PRG file ( a machine code module for loading *
60 rem  *  into a STOS Basic memory bank to perform 512 colour cycling of *
70 rem  *  a specified colour register under control of HBL and VBL      *
80 rem  *  interrupts ) for inclusion in program #2.                     *
90 rem  *                                                                *
100 rem *                 By Anthony Hoskin 27th July 1990               *
110 rem *                                                                *
120 rem *               For NEW ATARI USER / PAGE 6 Magazine             *
130 rem *                                                                *
140 rem ******************************************************************
150 rem
160 key off : hide on : windopen 1,0,8,80/divx,12,2 : curs off
170 cdown : centre "Creating RAINBOW.PRG file now..."
180 print : cdown : centre "Please wait."
190 rem
200 reserve as work 10,800 : BANKADDRESS=start(10) : CHECKSUM=0
210 restore 290 : for LOOP=1 to 352 : read WD : CHECKSUM=CHECKSUM+WD
220 doke BANKADDRESS,WD : BANKADDRESS=BANKADDRESS+2 : next LOOP
230 rem
240 if CHECKSUM=3713375 then bsave "rainbow.prg",start(10) to start(10)+704 :
print : cdown : centre "File saved to disk." else print : cdown : centre "Error
in data ....."
250 rem
260 print : cdown : centre "Click mouse key to exit."
270 while mouse key=false : wend : default : end
280 rem
290 data $601A,$0,$290,$0,$0,$0,$0,$0,$E,$7D00,$0
300 data $0,$0,$0,$4A80,$6700,$28,$2F01,$6100,$12E,$221F,$C40
310 data $2,$6700,$1C,$C41,$F,$6E00,$14,$C41,$0,$6B00,$C
320 data $6100,$A,$4E75,$6100,$B8,$4E75,$303A,$254,$4A40,$6600,$16
330 data $487A,$14,$3F3C,$26,$4E4E,$5CBF,$41FA,$23E,$30BC,$FFFF,$4E75
340 data $41FA,$218,$E349,$227C,$FF,$8240,$D2C1,$2149,$20,$3151,$1E
350 data $1179,$FF,$FA09,$4,$1179,$FF,$FA07,$6,$1179,$FF,$FA13
360 data $8,$2179,$0,$120,$A,$20B9,$0,$70,$317C,$F888,$1A
370 data $317C,$0,$18,$317C,$0,$16,$317C,$0,$14,$317C,$0
380 data $12,$317C,$0,$10,$317C,$0,$E,$239,$FE,$FF,$FA07
390 data $43FA,$80,$23C9,$0,$120,$39,$1,$FF,$FA07,$39,$1
400 data $FF,$FA13,$43FA,$E8,$23C9,$0,$70,$4E75,$303A,$1A0,$4A40
410 data $6700,$16,$487A,$14,$3F3C,$26,$4E4E,$5C8F,$41FA,$18A,$30BC
420 data $0,$4E75,$13FA,$168,$FF,$FA09,$13FA,$162,$FF,$FA07,$13FA
430 data $15C,$FF,$FA13,$23FA,$156,$0,$120,$23FA,$144,$0,$70
440 data $227A,$15C,$32BA,$156,$4E75,$3F3C,$4,$4E4E,$548F,$4E75,$48E7
450 data $80C0,$41FA,$124,$2268,$20,$32BA,$136,$668,$1,$E,$C68
460 data $8,$E,$6600,$34,$317C,$0,$E,$668,$1,$10,$C68
470 data $8,$10,$6600,$1E,$317C,$0,$10,$668,$1,$12,$C68
480 data $8,$12,$6600,$8,$317C,$0,$12,$317C,$F888,$1A,$303A
490 data $E2,$E140,$D168,$1A,$303A,$D6,$E940,$D168,$1A,$303A,$CA
500 data $D168,$1A,$4CDF,$301,$8B9,$0,$FF,$FA0F,$4E73,$13FC,$0
510 data $FF,$FA1B,$13FC,$1,$FF,$FA21,$C39,$1,$FF,$FA21,$6600
520 data $FFEE,$13FC,$8,$FF,$FA1B,$48E7,$8080,$41FA,$7E,$668,$1
530 data $14,$C68,$8,$14,$6600,$34,$317C,$0,$14,$668,$1
540 data $16,$C68,$8,$16,$6600,$1E,$317C,$0,$16,$668,$1
550 data $18,$C68,$8,$18,$6600,$8,$317C,$0,$18,$317C,$F888
560 data $1A,$303A,$4A,$E140,$D168,$1A,$303A,$3E,$E940,$D168,$1A
570 data $303A,$32,$D168,$1A,$317A,$2A,$E,$317A,$26,$10,$317A
580 data $22,$12,$4CDF,$101,$4EF9,$0,$0,$0,$0,$0,$0
590 data $0,$0,$0,$0,$0,$0,$0,$0,$0,$0,$0
600 data $0,$0,$0,$0,$0,$0,$0,$0,$0,$0,$0
```

Program 1 - a machine code rainbow scrolling module

USEFUL RAINBOWS

The next program demonstrates just how useful a Rainbow routine can be, it can make (almost) any program look classy with just a simple CALL command (I may even do a new version of Treasure Search to take advantage of it!!). Type in **PROGRAM 2**, this is how it works

LINES 10-120 just tell you what a generally brilliant person Anthony Hoskin is for writing such a useful routine
LINE 160 sets up the screen
LINE 170 reserves the memory bank and loads in the module saved when you ran PROGRAM 1 (you did run it?)
LINES 210-240 draw a 16 colour (0-15) bar chart and display a little message
LINES 280-290 are the interesting lines. To start/stop the routine you need to pass a value into DREG(0), a value of 1 will will switch the colour cycling on and a value of 0 will stop it. You will also need to pass the value of the colour register you wish to cycle into DREG(1) (this can 0-15 in low res or 0-3 in medium res). Of course before you see any changes you will have to CALL the routine using - CALL banknumber
LINES 310-370 actually cause the routine to cycle each bar in the chart individually, this continues until you click on the mouse

AN INTERLUDE

A short interlude before the next program, I did fully intend to do a little SPEAKTEX tutorial (the PD speech generator for STOS) this issue but unfortunately after looking at the module it seems a little too big to publish as a listing (about 30k!!!!!) so I have put it on the second STOS column disk (available from the usual place), if enough people buy it I will publish a small piece on it.

continued ☛

BACK TO THE PROGRAMS

The last program for this issue is a real corker (it should be, I wrote it!!!!), basically it allows you to paste sprites on the screen. It is something that the programmers of Fun School 3 needed so that they could create sheets of animation to port over to other machines, so I obliged and wrote this. To use it you just load a sprite bank (the 'L' key) and cycle through the sprite bank (the '+' and '-' keys) plotting the sprites onto any part of the screen you wish (by pressing the left mouse key and then the right), you can then save the screen (press 'S'). The program also includes some very interesting 'hacks' into the sprite bank, here's how it works

LINE 150 sets up initial sprite number and reserves a screen (used for the undo feature)

LINE 160 does a few jumps to set up the screen, load a sprite bank and calculate the information needed about the sprite bank

LINE 170 changes the mouse to the image of the first sprite

LINES 180-280 do the important bits of checking the keyboard and mousekeys

LINE 370 finds the start of the sprite bank (past the header information)

LINES 380-390 find the xsize and ysize of a sprite (determined by the variable spnum)

LINES 400-410 find the x and y hotspot of a sprite (determined by the variable spnum)

LINE 420 sets up the mouse limits

LINE 470 grabs the screen before erasing it with the file selector

LINE 480 changes the mouse back to the appropriate sprite if a sprite bank is not loaded and then restores the screen

LINE 490 loads the new sprite bank, gets the sprite palette, finds the number of sprites, changes the mouse to the first sprite and then calculates the sprite information

LINE 500 pokes the sprite palette into screen 6

LINE 510 restores the old screen (erase it if you want)

LINES 550-560 hack into the sprite bank to find out the palette

LINE 600 grabs a copy of the screen and changes the mouse back to normal. It then pops up a file selector and after typing something restores the screen back to normal

LINE 610 jumps back to the main program if no name was typed in

LINE 620 saves the screen to disk

LINE 670 gets the x/y coordinates of the mouse

LINE 680 grabs the screen before we plot the sprite (used for undo mode), the sprite is then positioned and pasted onto the screen using PUT SPRITE. A box is then drawn around the sprite

LINE 730 copies the screen into bank 6, the colour is then poked into the area in bank 6 that stores the colour palette

LINE 770 this bit does the poking

LINE 810 copies screen 6 back to the physical screen

That's it, I hope you find the program as useful as I know many people have found it over the past few weeks.

OOPS, MR EDITOR!

Hey, before I pop back into looney land did anybody notice the slight mistake in the last issue? Quite a few people who have written to me commented on my rather unusual spelling of 'diskuss', this is due to the fact that I usually spell disk (as in 3.5" floppies) with a 'C', but N.A.U. prefers to use the more unique way of spelling disk with a 'K' (still with me?), anyway to cut a long story short a slight mistake obviously occurred with the Search/Replace functions of the good old word processor. Apologies to those who thought I may have been re-writing the English dictionary.

SIGNING OFF

Thanks to Sandra Sharkey (all-round-amazing person) for the collection of PD disks, they are always brilliant!! That's it for this time, if you want any of the new STOS PD disks (they include games, demos and loads of sample disks) contact

```
10 rem  **********************************************************************
20 rem  *                                                                    *
30 rem  *                     RAINBOW Program listing #2                     *
40 rem  *                                                                    *
50 rem  * Colour cycling demo using a machine code module in memory bank #10 *
60 rem  * under control of HBL and VBL interrupts.                           *
70 rem  *                                                                    *
80 rem  *                         By Anthony Hoskin                          *
90 rem  *                                                                    *
100 rem *      For NEW ATARI USER / PAGE 6 Magazine 27th July 1990           *
110 rem *                                                                    *
120 rem **********************************************************************
130 rem
140 rem <----------- Initialise screen rez and load memory bank 10 ----------->
150 rem
160 break off : key off : mode 0 : hide on : curs off
170 erase 10 : reserve as data 10,000 : load "rainbow.prg",10
180 rem
190 rem <-------------------- Set up colour bar display --------------------->
200 rem
210 X=0 : Y=40
220 for COL=0 to 15 : ink COL : bar X,Y to X+19,Y+119 : X=X+20 : next COL
230 centre "STOS Basic colour rainbow demo."
240 locate 0,22 : centre " Click mouse key to quit "
250 rem
260 rem <-------------------- Cycle through all 16 colours ------------------>
270 rem
280 rem dreg(0) = ripple on/ripple off flag : 1 = on , 0 = off
290 rem dreg(1) = colour register number ( 0 to 15 inclusive )
300 rem
310 COL=0 : timer=0
320 while mouse key=false
330 locate 0,2 : centre " Cycling colour #"+str$(COL)+" "
340 dreg(0)=1 : dreg(1)=COL : call 10
350 if timer>200 then dreg(0)=0 : call 10 : inc COL : timer=0
360 if COL>15 then COL=0
370 wend
380 rem
390 rem <-------------- Tidy up before terminating program ----------------->
400 rem
410 dreg(0)=0 : call 10
420 break on : default : end
```

Above - Program 2 - a demo using the rainbow routine

Right - a routine for pasting sprites

```
100 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
110 rem                          SIMPLE SPRITE PLOTTER
120 rem
130 rem                              By Peter Hickman
140 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
150 SPNUM=1 : reserve as screen 6
160 gosub 330 : gosub 470 : gosub 370
170 change mouse 4
180 repeat
190 TEMP$=upper$(inkey$)
200 TEMP=mouse key
210 if TEMP$="+" and SPNUM<NUMBER_OF_SPRITES then inc SPNUM : gosub 370 : change
mouse 3+SPNUM
220 if TEMP$="-" and SPNUM>1 then dec SPNUM : gosub 370 : change mouse 3+SPNUM
230 if TEMP$="L" then gosub 470
240 if TEMP$="S" then gosub 600
250 if TEMP=1 then gosub 660
260 if TEMP$="C" then clw
270 if TEMP$="U" then gosub 810
280 until TEMP$="Q"
290 end
300 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
310 rem                          SET UP SCREEN
320 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
330 key off : mode 0 : curs off : clw : flash off : return
340 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
350 rem                        FIND X/Y OF SPRITE
360 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
370 ST=start(1)+22
380 X=(peek(ST+((SPNUM-1)*8)+4))*16
390 Y=peek(ST+((SPNUM-1)*8)+5)
400 HOTX=peek(ST+((SPNUM-1)*8)+6)
410 HOTY=peek(ST+((SPNUM-1)*8)+7)
420 TX=x mouse : TY=y mouse : limit mouse 1,1 to 318-X,198-Y : x mouse=TX : y
mouse=TY
430 return
440 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
450 rem                         LOAD SPRITE BANK
460 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
470 gosub 730 : change mouse 1 : limit mouse : NAME$=file select$("*.MBK","PICK
A SPRITE BANK")
480 if NAME$="" then change mouse 3+SPNUM : gosub 810 : return
490 erase 1 : load NAME$ : gosub 550 : NUMBER_OF_SPRITES=deek(start(1)+16) :
change mouse 4 : SPNUM=1 : gosub 370
500 gosub 770
510 gosub 810 : return
520 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
530 rem                        GET SPRITE PALETTE
540 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
550 XP=hunt(start(1) to start(1)+length(1),"PALT") : if XP=0 then return
560 XP=XP+4 : for I=0 to 15 : colour I,deek(I*2+XP) : next I : return earc
HFAILED0.0
570 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
580 rem                         SAVE NEO PICTURE
590 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
600 gosub 730 : change mouse 1 : limit mouse : NAME$=file select$("*.NEO","PICK
A SAVE NAME") : change mouse 3+SPNUM : gosub 370 : hide on : gosub 810
610 if NAME$="" then show on : return
620 save NAME$,physic : show on : return
630 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
640 rem                       PUT SPRITE ON SCREEN
650 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
660 repeat : TEMP=mouse key : until TEMP<>1
670 TEMPX=x mouse : TEMPY=y mouse
680 if TEMP=3 then gosub 730 : hide on : sprite 1,TEMPX,TEMPY,SPNUM : wait vbl :
put sprite 1 : TX=TEMPX-HOTX : TY=TEMPY-HOTY : wait vbl : sprite off 1 : show on
: ink 15 : box TX-1,TY-1 to TX+X+1,TY+Y+1
690 return
700 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
710 rem                            GET SCREEN
720 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
730 hide : screen copy physic to 6 : gosub 770 : show : return
740 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
750 rem                            GET PALETTE
760 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
770 for LOP=0 to 15 : doke start(6)+32000+(LOP*2),colour(LOP) : next LOP :
return
780 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
790 rem                            PUT SCREEN
800 rem ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
810 hide : screen copy 6 to physic : screen copy 6 to back : show
820 get palette (6) : return
```

Page 6 publishing for a full list of their excellent software. If you want to know more about the Riverdene STOS demo source code give them a bell on (0734) 452416.

What the heck, while I'm plugging every company under the sun I might as well mention my old mate Aaron Fothergill whose STOS club has now reached 700 members, if you want more information drop him a line at 1 LOWER MOOR, WHIDDEN VALLEY, BARNSTAPLE, NORTH DEVON, EX32 8NW and remember to give me a mention (please)!!!

Okay have fun and I'll speak to you in the next issue (perhaps I'll give you a report on what Mandarin got up to at the European Computer Entertainment Show).

Write to Peter Hickman at
36 CLEVERLEY ESTATE
WORMHOLT ROAD
LONDON
W12 0LX

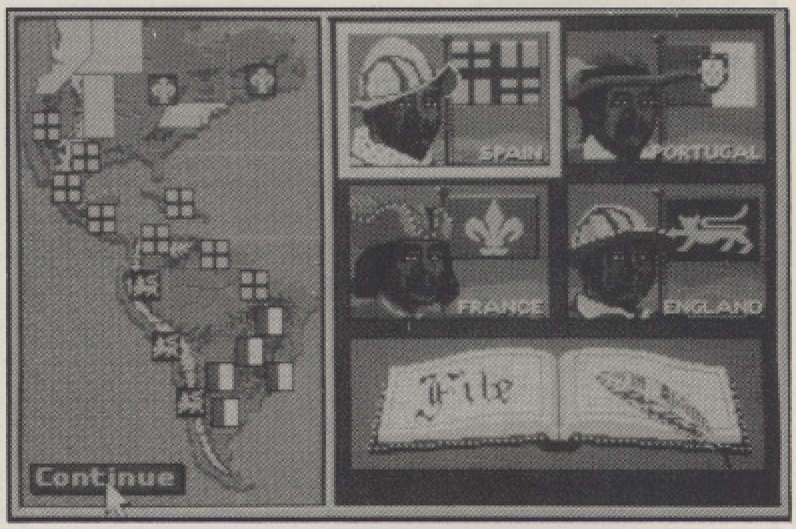
GOLD OF THE AMERICAS

It is 1501. The King has just given you four small armies, three groups of colonists, a couple of trading vessels and two of his best explorers, with instructions to explore and colonise the New World. Every ten years he will send out more help, but he will of course want TAXES in return! The main problem is that you are only one of four such groups (England, Portugal, Spain and France) who each want more than their fair share of the Americas!

Gold of the Americas is a very colourful, mouse-driven simulation of the period from 1501 to 1800. It follows the standard War Game philosophy of allowing each player to enter a set of instructions for his forces, then resolves them using internal "Combat Resolution Tables" and "simulated dice throws".

On each turn you are lead through detailed reports of all the previous move's activities. This is followed by the Acquisition Phase, in which you spend your money on armies, colonists, trading ships, warships, privateers, or slaves to supplement those sent from home. The left hand side of the screen always shows the current map of the Americas, and you can point anywhere on it to get an immediate pictorial report of an area - colony size, development, loyalty; native strength; mineral and gold resources; climate and agricultural potential.

The next phase is Placement - your resources are all shown graphically, you just select and drag. You can send explorers to try and open up new areas, or to lead your armies on raids or invasions; you can send colonists to newly explored areas, or to build up existing colonies; you can place your traders, warships and privateers in the various oceans. Armies are also useful to help keep your explorers and colonists alive during the early turns, before all the natives die of European diseases!



The last phase is Colony Management - each colony can, optionally, be exploited (preferably only if they have natives or slaves!), developed (put extra money into growing faster), or placated (initially it is to placate the natives and stop them eating your colonists, later it is to placate the colonists and stop them declaring independence! - the more astute of you will have noticed that the game finishes 24 years AFTER the American Revolution!).

Each of the other players then gets to make his turn. The new status of the world is displayed. And off you go again for the next turn. If the other players are being run by the computer (you can choose Novice, Normal or Expert for each enemy country) then the turn is almost instantaneous. If you are playing against humans then they will probably want you to leave the room while they make their moves - usually 2 or 3 minutes per player per turn, even if you hurry.



A solo game against the computer takes a couple of hours. You will need to play quite a few games to really understand how it all hangs together. If you develop too quickly your colonies will go independent, if you go too slowly they may die out or not give you enough cash. Extortionate taxes mean that you never have enough money, so you can never keep all your fleets and colonies as you would like. The enemy keep raiding or invading, and you have no control of your mother country's foreign policy - France may invade a colony of yours on one turn, then when you try to retaliate you find you are not allowed to because some idiot back home has signed a peace treaty with them! Privateers, diseases and revolts beset you on every side!

I felt at times that perhaps there was a little too much randomness and that I would like to know the details of some of the CRTs to help me make decisions. There is further variability in that the different countries get different amounts of home support at different stages of the game, for instance Spain starts out with a lot of help from home, which tails off just as England and France start getting lots of help and start really beating Spain up - maybe historically accurate, but very frustrating. Some of that randomness can be removed by turning off the Historical Options.

Playing against humans requires a lot of time as each player will need at least two hours, and there is not a lot to do while your opponents are making their moves - still if you like that sort of game then this is an excellent example of it.

Title:	**GOLD OF THE AMERICAS**
Publisher:	**Strategic Studies Group**
Price:	**£24.99**
Reviewer:	**John Sweeney**

- ***GAMEPLAY*** *- Nice War Game with lots of features - well designed mouse interfaces make it fun to play*
- ***GRAPHICS*** *- Lots of excellent pictures, well designed so that you can easily see what is happening*
- ***VERDICT*** *- A good war game for 1 to 4 players - as long as you have lots of time*